

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 284.—VOL. XI.]

London : Saturday, January 30, 1841.

[PRICE 6D.

PERIODICAL SALE.—IMPORTANT SHARES IN CWM CELYN AND BLAINA IRON AND COAL COMPANY.

MESSRS. SHUTTLEWORTH and SONS are instructed to include in the next PERIODICAL SALE of REVERSIONARY INTERESTS, &c., appointed to take place at the Mart, on Friday next, February 5, at Twelve o'clock, in lots, TEN shares of £100 each, paid in full, in the valuable and highly promising CWM CELYN AND BLAINA IRON AND COAL COMPANY, with a capital of £180,000, situated immediately adjoining the works of Messrs. Bailey, of Nantyglo, in Monmouthshire, now paying a dividend of 4*1/2* per annum, which is expected to be shortly much increased.

Particulars may be had at the Mart, and of Messrs. Shuttleworth and Sons, No. 26, Poultry.

MOST IMPORTANT TO RAILWAY COMPANIES, ENGINEERS, WHEEL-MAKERS, AND OTHERS.

MESSRS. ADAM MURRAY and SONS are authorised to receive, until the 15th February, written OFFERS the highest of which, above the reserved prices, will be accepted, for a LICENSE for PARKINSON'S PATENT WOOD RAILWAY WHEEL for each of the rail ways having a terminus in London, Bristol, and Birmingham, and the Llanelli and Taff Vale. The success of these wheels—the cheapest and most durable ever made—has been completely established on the Liverpool and Manchester, and Great Western Railways; and as they cannot break, and will prevent the breaking of axles, railway travelling will become much more safe and easy, while directors will be relieved of immense anxiety and responsibility.—A drawing to be seen, and particulars to be had, of A. Murray and Sons, surveyors, &c., 47, Parliament street.

VALUABLE MINE, ENGINES, AND MACHINERY, FOR SALE.

TO BE SOLD BY AUCTION, on Friday, the 12th of February next, at Three o'clock in the afternoon, at the Marazion Hotel, in the town of Marazion, all that TIN and COPPER MINE called the GWALLO MINE, situated in the parish of St. Hilary, in Cornwall, on which an ENGINE of 36-inch cylinder has been erected, together with the following MATERIALS—one 17-inch whim and stamping engine, cage, tackle, &c.; three capstans, shears, and two ropes, twelve and six inches; two 20 and one 2-ft. stamping mills, the latter eight heads; four horse whims, tackle, ropes, and chain; eight plunger poles, from six to fourteen inches diameter, with cases, stuffing-boxes, &c., to match, each fourteen inches; 1*1/2*, 12, and 6-inch H-pieces, with top, doors, seats, &c.;

Twenty 9-foot 14-inch pumps } with working pieces, clock seats, and windors, to match;

seventy fathoms of 8, 9, and 10-inch rods; plates and bolts; three smiths' bellows, anvils, vice, and a large quantity of screwing; smiths' and miners' tools; together with tin frames, buddies, sheds, iron, timber, and other useful articles, account-house furniture, &c.—This mine is at present suspended, owing to the embarrassment of the late adventures, but it has produced large quantities of tin, the prospects are highly flattering, and the recent discoveries in the Marazion Mines, which adjoin this, render it a most promising speculation. It is well known that there is a great scarcity of tin, and the recent exertions made by the Miners' Smelting Company, will insure a fair price in future for tin and other minerals.

To inspect the mines, and for further particulars, application may be made to Captain William Richards, Rosneath, Marazion, or to Messrs. Grylls and Hill, solicitors, Helston.—Dated Helston, Jan. 29.

FREEHOLD LAND, WOOD, AND MINES.

In the parish of Nuneaton, in the county of Warwick.

TO BE SOLD, BY PRIVATE CONTRACT, all that MESS. SUGAGE, BUILDINGS, AND ARABLE, MEADOW, and PASTURE LAND, containing 17*1/2* ac. 0s. 39*1/2*, in the occupation of Mr. John King; also a tract of WOOD LAND (called Haunch Wood), containing 42*1/2* ac. 2s., together with the MINES OF COAL AND IRONSTONE, and other MINERALS, extending under the greater part of the land in an wood. The situation is within a short distance of the Coventry Canal, and the Mines consist of valuable seams of Coal and Ironstone, some extensively worked in the county of Warwick. The whole lies within a moderate depth, and may be drained at a moderate expense. The tenant will show the property. Plans of the estate may be seen at the office of Mr. Radford, Atherton, at Mr. Harris's, Ward-end, near Birmingham; at Mr. C. Couchman's, 31, Waterloo street, ditto, and terms may be known, on application to Mr. Woodhouse, mineral agent, Overseal, near Ashby-de-la-Zouch.

VALUABLE COAL MINE IN CHORLEY.

TO BE LET, a CONSIDERABLE EXTENT OF THE ARLEY COAL, about five feet in thickness, and of excellent quality, situated within a mile of the town of Chorley, and a few hundred yards from the Bolton and Preston Railway, and the Leeds and Liverpool Canal. A pit, ten feet in diameter, is sunk to the mine, and a company are at present working the same mine, or the deep.—Also, TO BE SOLD, a 14-horse HIGH-PRESSURE ENGINE, with boiler, nearly new, and pillars, &c., complete, winding to pump gear, two broad-gears, with pulleys, ground spears, round and flat rods, double-powered crab, and a large quantity of tools, &c.—The whole standing within a mile and a half of the coal, advertised as above.

For further particulars, apply to Messrs. Lord and Ackery, solicitors, Wigan; or to Mr. John Dallington, of Worthington, near Wigan.

TO BE SOLD, by PRIVATE CONTRACT, that extensive coal field, known as the HAZLERIGG COAL MINES, together with the long-established, and valuable current-going colliery, called FAWDON COLLIERY, situated about three miles north of Newcastle-upon-Tyne, with all the fixed and moveable stock therein.

The coal, which is the High Main, or Wall's End seam, is of excellent quality for domestic purposes, and has been well known in the London and coast markets for the last twenty-six years as "Newmarch's Wall's End." A new winning was commenced between one and two years ago, and a pumping-engine erected thereon, considerably more than competent to the latest requirements of the colliery, and no outlay will be needed in the winning of new portions of coal to the colliery for a long period of years. The great extent of the Hazlerigg coal field, comprising about 4500 acres, affords the opportunity of establishing other valuable collieries.

For further particulars, application may be made to Mr. James Easton, the colliery viewer, to Mr. Thomas Forster, Haswell colliery; to Mr. Wilkinson, Esq., solicitor, Hull; to Messrs. Bell, Bradstock, and Bell, solicitors, Bow Church-yard, London; or to Messrs. Carr and Jobling, solicitors, Newcastle-upon-Tyne.

TO BE SOLD, BY PRIVATE CONTRACT, one 85-inch cylinder ENGINE, and one 76-inch ditto, nearly new, and without boilers; also, a great many 12-, 18-, and 19-inch pumps, plunger poles, clock doors, winders, &c.—Apply to Captain Richards, Rosneath, near Marazion, Cornwall.

COAL AND IRONSTONE ON THE COAST OF EAST LOTHIAN, SCOTLAND.

TO BE LET, for Nineteen Years, with immediate entry, the COAL and IRONSTONE of the Barony of SETON, situated in the parish of Tranent, ten miles east of Edinburgh, and five from Haddington. Two seams, of about thirty three inches each, have been partially worked, and found to lie in a regular manner; besides these, there are other seams of greater thickness. The quality is first-rate. The situation commands an extensive country side; and if the coal is worked to such an extent beyond the land sale as to make it an object, the proprietor would be ready to move the harbour of Port Seton upon the property.—The Ironstone is found in balls in the roof of the coal; it contains 28 per cent. of metal, and is readily purchased by the Carton Company and others.

For further particulars, application may be made to Messrs. Tod and Hill, W. S., George-street, Edinburgh; or Mr. James Burnet, Aberlady, by Haddington.

Edinburgh, Jan. 11.

NORTH KENT RAILWAY.—EVERY INFORMATION relative to this undertaking may be OBTAINED by application at the office, No. 42, Lombard-street, between the hours of Ten and Four o'clock daily.

TO COLLIERY BAILIFFS AND OTHERS.—WANTED, a competent person, from thirty to thirty-five years of age, to TAKE CHARGE of the UNDERGROUND DEPARTMENT of a COLLIERY; he must be thoroughly conversant with dialling and ventilation, on the most approved modes; none but persons of the strictest integrity and industry need apply. Application to be made to Mr. Woodhouse, mineral agent, Overseal, near Ashby-de-la-Zouch.

ECONOMY IN FUEL, WITHOUT SMOKE, effected on Chemical Principles, by the PATENT IMPROVED FURNACE of CHARLES WYKE WILLIAMS, Esq.—BROCKLEHURST, DURCS, and NELSON, being authorised by the patentee, to bring to acquainted manufacturers and owners of steam-engines, that they are now prepared to construct furnaces, warranted to economise both heat and fuel, and to prevent smoke, by effecting a perfectly clean combustion of the fuel.

This simple and effectual plan, which produces a great saving both to boilers and furnaces, and requires less attention from the firemen than usual, has received the unqualified expression of the highest professional authorities and experienced engineers. It is applicable to marine, locomotive, and land engines, and furnaces of every description, already erected, may be altered without difficulty of a moderate expense. Professor Brindley, writing to the inventors, says—"You convert what is commonly called smoke into fuel of the fine white, and the place where, this combustion can be most effectively brought about." The patent furnace may be seen, and every information afforded on application to Brocklehurst, Durcs, and Nelson, manufacturers, engineers, and inventors, 12, Old-street, or Eliza Foundry, Valentine-street.

IMPORTANT TO MINING COMPANIES.—NOTICE.

I take the liberty to apprise all Gold and Silver Mining Companies in England, that, by continued assiduity and study, I have succeeded in INVENTING A MACHINE, applicable, with great advantage, for the AMALGAMATION OF GOLD and SILVER ORE; and I may assert, without presumption, that my method of amalgamation, based upon the use of this machine, is the most profitable and useful hitherto known.

My own experience in the mines of Brazil has convinced me—and every one conversant with mining will know too—that, with some gold ores and pyrites, there exists a great difficulty, advantageously to introduce the process of amalgamation; but, by my new invented machine, all doubts and difficulties are conquered, and I can point out the following advantages:

1st. My new machine can be profitably employed in all Gold and Silver Mines, and a greater per centage of metal will be gained by employing it than by any other method.

2d. If by the hitherto employed method of amalgamation, or washing, 100 tons of ore, or pyrites, could be worked in a certain period, by mine-lots tons could go through that process.

3d. This machine can be employed direct in a stamping mill, either for running amalgamation, or for concentrated pyrites, and the operation is much cheaper than by any other.

4th. The loss of quicksilver, by my method, is but trifling, which is, therefore, not only to be recommended to the Gold and Silver Mines of every mining country, but in particular to the Imperial Brazilian Mines of Gongo Soco, St. John del Rey, Morro Velho, and the mining company at Cate Branca, and is so much more so to the mines of Morro Velho, because there the loss of quicksilver is known to be very great, and it is acknowledged as a fact, that where there is much loss of quicksilver, such gold is necessarily lost along with it. The loss of quicksilver at Morro Velho could, by my new machine, be diminished by at least one-half.

My new machine has been already adopted by the Imperial Royal Chamber for Coining and Minting at Vienna, for the use of the Acaia Gold Mines of the Empire. In case the British mining companies should feel inclined to employ my machine in their mines, I would, against a proportionate remuneration, be ready to serve them, and to communicate my invention to them. I would then engage, before sending the machine to the mine, to have it tried in London, in order to lay before them, to their own conviction, the advantages of the machine and method.

Please apply to Messrs. Schaffa and Hein, 4, Mark-lane, London, for the amount of the consideration I expect for the communication of my invention; the said house will also transmit to me communications made to them in my behalf. Vienna, January, 1841.

F. X. HOCHDER.

HEIMANN'S NEWEST PATENT METALLIC WIRE

ROPE having been employed for several years in numerous mines on the Continent, have from their great STRENGTH, combined with DURABILITY and FLEXIBILITY, and COMPARATIVE CHEAPNESS, been found to possess considerable advantages over hempen ropes, as well as chains for all mining purposes. They are also particularly adapted for STANDING RIGGING of ships, and for all purposes where great strength and durability are required, as, from the peculiar mode of their manufacture, they are completely protected against CORROSION. A manufactory of these ropes is now being established near London, by Messrs. HEIMANN and KUPEL, by whom all orders will be promptly attended to.

Any further information may be obtained, by applying to Mr. William Kuper, No. 86, Great Tower-street, where also specimens of the ropes may be seen.

NEW METALLIC ROPE—NEWALL'S PATENT.—These ropes have been found, by experience, to possess very great advantages over every other kind of rope or chain for mines and railways. They are STRONGER, LIGHTER, CHEAPER, and MORE DURABLE. Arrangements are being made for adequately supplying the demand. Parties requiring such ropes are requested to make application to the patentees, R. S. Newall and Co.

Dundee, August 24.

A FOX AND CO. having obtained the exclusive license for MANUFACTURING the above ROPE, beg to inform the public that SPECIMENS may be seen at their office, No. 75, Old Broad-street, London, where every information may be obtained, and also at the following places:

Fox, Hawkins, and Hickling, wire drawers, Birmingham.	Robertson and Co., 12, Gore Piazza, Liverpool.
Matthew Dunn, Newcastle-on-Tyne.	Joseph Bothway, Plymouth.
John Thompson and Co., Dublin.	Thomas Mooney and Sons, Belfast.
Coates and Young, Glasgow.	James Kibble, Leith.
James Gunn, ...	

The rope is now at work in various mines in different parts of the kingdom, and also on the Blackwall Railway, where it answers every expectation. It has been used in shipping five years.

London and Greenwich Railway.—Notice is hereby given, that the FIRST HALF-YEARLY GENERAL MEETING of the proprietors of this company will be held at the London Tavern, Bishopsgate-street, on Tuesday, the 14th of February next, at Twelve for One o'clock.

The lot has fallen on the following gentlemen to retire from the direction, namely—J. W. Chidley, Esq., M.P., Thomas Cursey, Esq., and James Canfield, Esq., of whom J. W. Chidley, Esq., M.P., and Thomas Cursey, Esq., offer themselves for re-election, and Andrew Bonar, Esq., will be proposed to fill the vacancy occasioned by the retirement of James Canfield, Esq.

The TRANSFER BOOKS will CLOSE on Monday, the 1st, and re-open on Monday, the 24th of February next. By order of the board, J. Y. AKERMAN, Sec.

WEST WHEAL JEWEL MINING ASSOCIATION.—

Notice is hereby given, that a further CALL OF TEN SHILLINGS per share has been made, in conformity with the deed of settlement, payable on or before the 1st March next, into the London and Westminster Bank, to the credit of this association, with the Western District Banking Company, Truro; or into the bank of the said company, at Truro. By order of the board,

HOWLAND NICHOLSON, Sec.

THE PATENT SAFETY FUSE,

FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the safest, cheapest, and most expeditious mode of effecting this very hazardous operation. From many testimonies with which the Manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., R.E., Sec. Ac.

"I am very glad to hear that my recommendations have been of any service to you. They have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall.

PATENT IMPERIAL OIL—THE ONLY SUBSTITUTE

FOR SPERM.—To find a substitute for sperm oil for burning and for machinery has engaged the attention of scientific men for many years. A long course of combinations and experiments has at length led to the production of an oil equally good, but, in the opinion of several practical men, superior to sperm oil for either of the abovementioned purposes. For burning, no alteration whatever is required in even the finest lamps; the same cotton (rather coarse unbleached is recommended) as for sperm oil may be used; less oil is consumed, in the proportion of 4 pints of this to 3 pints of sperm; the light produced is superior; the carbonisation of the cotton is scarcely so great as when sperm oil is used; and the lamps, therefore, will require no attention during the longest night. It does not freeze, and will not therefore require warming during the coldest weather. With relation to sperm oil, the difference in the quantity consumed is nearly 30 per cent., less—one gallon of this burning 224 hours, while an equal quantity of sperm in the same lamp was exhausted in 164 hours, and the price of this oil being 4*1/2* per cent. above that of sperm, the saving of course in consumption will exceed one-half.

The same lamp as those now employed may therefore be used at least one-half of the present cost—that is, at the same expense as if sperm oil were under 2*1/2* per gallon, instead of 1*1/2*, as now paid. Beyond this statement, and in confirmation of it, the proprietors, already assured by experiment of the advantage of this oil for the purposes of MACHINERY, will merely add a copy of the opinion of a celebrated chemist and mechanist, given, without knowledge of the parties, after several trials:—"I have examined and tested your oil in comparison with the common sperm, and will endure a lower temperature by 30 deg. Fahrenheit without freezing. It is entirely free from acid of any kind—will not decompose metal—and, therefore, will not injure the tubes of the finest lamps. Under precisely the same circumstances, I find it gives as strong, and as brilliant a light as sperm oil, does not carbonise the cotton more, and produces less smoke." The proprietors, higher qualities.

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LAW INTELLIGENCE.

DISPUTED RIGHT TO MINERAL DEPOSIT.

COURT OF CHANCERY—JAN. 25.

THOMAS E. JONES.—This was a bill for an injunction to restrain the defendant from taking away the deposit of mineral in a pool in Wales which supplied water to his mill. The defendant in his answer stated that he had exercised the right of clearing the pool for many years, and that the deposit was separate from the freehold, and belonged to him as the occupier of the land. He also alleged that a part of the pool did not belong to the plaintiff as owner of the inheritance.

The LORD CHANCELLOR gave judgment this morning, and observed that, after an examination of the pleadings and evidence, he had come to the conclusion that the plaintiff had established her right to the greater part of the pool, and that the defendant could not support his claim to take the mineral deposit. His lordship thought, however, there was some doubt respecting what was called the ancient pool, and that the plaintiff ought to try that question in a court of law.

Mr. GIRDLESTONE said an action had been commenced.

His lordship, under these circumstances, directed the master to stand over till the trial of the action.

MR. NEILSON'S PATENT—HOT BLAST.

NEILSON E. FOTHERGILL.—The LORD CHANCELLOR dissolved the injunction obtained in this and two other cases by the plaintiff against different ironmasters, to restrain infringements of his patent for applying heated air in the smelting of iron. His lordship said, that in all, if Mr. Neilson had a valid patent, he was entitled to the stipulated sum of £1. a ton; but the defendants undertook to deal with the amount as the court should direct.

EASTERN COUNTIES RAILWAY COMPANY.

COURT OF COMMON PLEAS—JAN. 27.

THE QUEEN E. THE COMPANY.—In this case, after some preliminary proceedings, a peremptory mandamus had been issued, commanding the defendants to reconstruct a certain bridge upon the line of the railway.

Mr. E. JAMES now applied to the court to enlarge the return to the writ. The affidavit in support of the motion stated, that immediately upon the receipt of the mandamus the company proceeded to perform what they had been commanded; but that the state of the weather had rendered it impossible to carry on the work with as much rapidity as might otherwise have been attained.—The application was granted.

LONDON AND BIRMINGHAM RAILWAY COMPANY.

COURT OF QUEEN'S BENCH—JAN. 28.

THE QUEEN E. THE COMPANY.—Sir W. FOLLETT applied for a rule to set aside an injunction. The death of a party had been occasioned by an accident on this railway, and the jury returned a verdict of "Manslaughter" against one man, and of "Felo de se" against the person who was killed, and also levied a dead-land on the engine. The question was similar to the one argued on the part of the Eastern Counties Railway, as to whether a jury, having returned a verdict that a person was guilty of felony, could at the same time fix a dead-land.—Rule granted.

LAW OF CO-PARTNERSHIP—IMPORTANT DECISION.

ROLLS' COURT, DUBLIN—JAN. 25.

JOHN FAWCETT E. THE AGRICULTURAL AND COMMERCIAL BANK OF IRELAND.—At the sitting of the court, the MASTER of the ROLLS, after recapitulating the statements in the bill (which has been repeatedly argued at great length before the court), and the defendants' demurrer, pronounced judgment in favour of the plaintiff, and overruled the demurrer on all points. His Honour decided that the 33rd Geo. II., commonly called the Bankers' Act, applies to all joint-stock co-partnerships of bankers formed under the 6th Geo. IV., c. 42; and that the stoppage of the bank in question, in June last, created a trust affecting the partnership and all its members and their property, at the time of the stoppage, in favour of the creditors. He also held that this trust can be administered in a suit constituted like the present against the public officer, who fully represented all the partners, and whom it was not necessary to make partner. This is a decision of vast importance, and will be no less beneficial to the creditors than to the shareholders, who will be protected from execution at law.

SPECIFICATIONS OF RECENT PATENTS.

(From the "Inventors' Advocate.")

William Jeffries, Holme-street, Mile-end, metal refiner, improvements in obtaining copper, spelter, and other metals from ores, Jan. 1, 1841.—Claim first. Mode of smelting copper ore, by treating the melted metal with carbon, or with alkali.

The whole of these improvements are confined to the smelting process. A suitable furnace is charged with ore in its raw state, by pressure. When this has become thoroughly melted, the mass is charged with either carbon, or alkali (carbon is the best) in powder, and the charge continued until the mass again becomes melted, when the furnace is tapped, and it is run off into cold water, and then treated as usual.

Claim second.—Method of obtaining zinc from ore by means of ovens. The ovens are made of any convenient form, and the heat applied from the outside; the roof, floor, &c., being as thin as possible consistently with strength. The bricks of three inches thick will be found suitable for the floor, and two-inch bricks for the roof and sides. About 5 per cent. bituminous small coal is added to the ore, and the oven charged quite full. The door is then closed, and luted with fine fitting. The heat of the furnace is raised, when distillation will ultimately be found to go on as well as when a number of small vessels are used, which has been the practice. Pipes lead from the upper and lower part of the furnace to reservoirs containing water, into which the metal is run when the process is completed.

James Harvey, Basing place, Waterloo-road, gentleman, for improvements in extracting sulphur from pyrites and other substances containing the same, Jan. 8.—Claim. The improved method of subliming sulphur, downwards, from pyrites and other substances containing the same, as described.

A furnace is constructed so that the heat may pass along the centre of a horizontal chamber, there come back on both sides to the front, and return towards the back at the extreme sides of the chamber; beneath this chamber there is a second one formed of metal, slate, or stone, the roof of which forms the bed of the upper chamber; pots made of iron, fire-clay, or other proper material, and formed like the frustums of cones, and having their bottoms perforated with holes, pass through and are suspended in apertures formed through the tiles of which the roof of the upper chamber is composed, their lower ends passing through holes in the roof of the lower, or sulphur chamber. The floor of this chamber is covered a few inches deep with water. Pyrites, or other substances containing the sulphur, are first broken into lumps of about the size of a man's fist, they are then placed in the pots which are suspended as described. These are then securely fastened down and the heat of the furnace raised, which will play round the pots, and the sulphur in vapour be admitted through the perforated bottoms into the closed chamber beneath; where it will be condensed by the water on the floor, and retained in the form of flowers of sulphur. A pipe, furnished with a cock or valve, leads from the back part of this chamber, and causes a very gentle current of air which promotes the separation of the sulphur from the pyrites. Before re-charging the pots, the furnace must be allowed to cool.

John David Poch, Halifax, practical chemist, improvements in evaporating water and other fluids (being a communication), Jan. 2. Claim. The construction and application of an apparatus, by which no fluid, but that intended to be evaporated, is used.

A cylindrical boiler is built over a furnace in the ordinary manner, by the side of which is arranged a series of other boilers, each containing a worm; underneath each boiler is a box, and under each box a cistern; the cylindrical boiler is supplied with liquid, and the steam it generates is conveyed by connecting pipes from one worm to another, whilst any heat remains, and being condensed fully through the boxes into the cisterns below; by this arrangement a great saving in fuel is effected, as not any of the heat from the steam is lost.

John William Nyren, Bromley, manufacturing chemist, improvements in the manufacture of oxalic acid, Dec. 26. Claim first.—The mode of manufacturing oxalic acid from a product obtained from the farina of potatoes and sulphuric acid.

Claim second.—The mode of manufacturing oxalic acid from a product obtained from horse chestnuts and sulphuric acid.

Claim third.—Mode of manufacturing oxalic acid by converting suitable liquids in lead vessels into oxalic acid.

A quantity of potatoes are first washed, and then rasped, ground, or mashed into a pulp; this pulp is washed with water, and then allowed to settle; when the water is drawn off, and a fresh quantity of water added, with sulphuric acid or oil of vitriol of commerce, in proportion of 2 per cent. in weight to the potatoes used; the whole is then boiled for some hours, until all the farina contained in the potatoes has arrived at a desired state, which may be proved by a drop of iodine being dropped into a small quantity of the boiling liquid on glass, when, if the glass remains colourless, the process is complete. For obtaining oxalic acid from chestnuts, the same process is observed, only the chestnuts are not washed. When the proper liquid is obtained, it is placed in lead vessels, or wooden vessels lined with lead, about eight feet square and three feet deep; the liquid is placed therein and heated by a coil of lead pipe, forty-eight feet long and one inch diameter, which will be found to keep the contents of the vessel at a proper temperature.

MINING CORRESPONDENCE.

ENGLISH MINES.

HOLMBUSH MINING COMPANY.

JAN. 25.—In the 100 fathom level the lode is improved, being now worth, in the present end, about 30/- per fathom. In the wings below this level the lode is about ten inches wide, and yielding a small quantity of ore. In the ninety fathom level west, the lode is without alteration; in width about eight inches, and worth 10/- per fathom. The lode in the wings below this level is somewhat less productive than when last reported, but still may be said to be worth about 40/- per fathom. In the eighty fathom level east the lode continues unproductive; in width about ten inches, and, altogether, looking at its general appearance, it may be said to be kindly. In the wings below the eighty fathom level west the lode is about a foot in width, and worth 10/- per fathom. The lode in the western stopes, in the back of this level, still continues a rich course of ore—worth 50/- per fathom, and promising improvement. The eastern stopes, in the back of the same level, are worth 25/- per fathom. In the seventy fathom level stopes the lode is about two feet wide, and worth, on an average throughout, about 30/- per fathom. The pitches, on the whole, present a favourable appearance, and our next sampling, in quantity and quality, which it is hoped will take place this week, will be of the same as last.

J. H. HITCHINS. F. PHILLIPS.

POLBRENN MINING COMPANY.

JAN. 23.—We have now communicated the twenty-two fathom level with Dorens's shaft, and have set the same to drive east on Dorens's lode by six men, at 6/- per fathom; the lode there, which we intend driving on, is about one foot wide, and thin, but not rich; there is a split of the lode gone to the north of this level, about six inches wide, which we intend cross-cutting to occasionally; that part in driving this level produced a good deal of tin. We have set a party of four men to cut whim plat at Dorens's shaft, plank down, and divide the same for the purpose of drawing the stuff from the bottom, in the mean time, make preparations for the flat-rods to be worked at that shaft, and sink to a thirty-two fathom level. We consider it of importance to set the adit end to drive east of Dorens's shaft, on the course of that lode, as it will very soon get into the turn or declination of the hill going eastwards, and where we, as well as most miners, consider our best prospects are; that adit must be driven on together, for the purpose of sinking wings to cut through the ground on the lode, and giving ventilation to that part of the mine. We have also put four men to cut ground at Murray's shaft as a preparatory step to sinking the said shaft ten fathoms below the adit level, on Wheal Harriet lode; we expect the whim will keep the water to sink that depth, should you approve of going on with that work, which we recommend being done.

R. ROWE.

GREAT WHEAL CHARLOTTE MINING COMPANY.

JAN. 25.—The lode in the engine-shaft is still poor. On Saturday we intend to set the plat to cut, and, immediately on its completion, shall commence driving on the course of the lode. The lode in the seventy-two fathom level east is large, but very poor. In the same level west, the lode continues much as when last reported, producing about four tons of ore per fathom, and worth 5/- per ton. The lode in the western wing, under the sixty-two fathom level, is about five feet wide—worth 20/- per fathom. In the eastern wing there is but little alteration; the branch of ore to the south is still five or six inches wide. The stopes in the bottom of the sixty-two fathom level, west from engine shaft, will produce four or five tons of ore per fathom—worth 4/- per ton. The stopes in the back of the sixty-two fathom level are fast approaching to the side, and at our next monthly setting we shall remove the men to stop a piece of ground further east, which is now working on tribute. The weather, I am happy to say, is now much more favourable than for some weeks past; and on Tuesday, the 2d February, we shall sample again on the part of the Eastern Counties Railway, as to whether a jury, having returned a verdict that a person was guilty of felony, could at the same time fix a dead-land.—Rule granted.

S. TREVETHAN.

UNITED HILLS MINING COMPANY.

JAN. 26.—Adit End East—Lode three feet wide, producing but very little ore. Adit End West—Lode 30 ft. 6 in. wide, producing some good stones of ore. Ten Fathom Level—No alteration in this end since our last. Thirty Fathom Level—Lode two feet wide, not producing so much ore as when last reported. Thirty-six Fathom Level—In the western end of this level the lode is three feet wide, producing some ore, but coarse in quality. Forty Fathom Level—In the eastern end of this level the lode continues its size and quality. Stopes, east and west of Webber's Winge—No alteration. Eastern Shaft—The water is still in this shaft. Fifty Fathom Level—In driving west of Diagonal shaft the lode is 4 ft. 6 in. wide, producing ore of a fair quality. East of Williams's—No lode broken for the past week. Williams's Shaft—No lode broken in this shaft for the past week. C. PENROSE.

TINCROFT MINING COMPANY.

JAN. 26.—There has nothing particularly new taken place in this mine since my last to report on at this time; I am glad, however, to say, that all our places continue to look equally as well as last reported, and we are getting on very steadily with all our operations. The weather being now very favourable we hope to make up for lost time. I believe we were never raising more tin stuff than at the present time, and, on the whole, our prospects were never better.

W. PAUL.

REDMOOR CONSOLIDATED MINING COMPANY.

JAN. 25.—The north engine-shaft is sunk 9 fms. 2 ft. below the forty fathom level—ground favourable. In the forty fathom level cross-cut the ground is much as reported in my last—rather hard. In driving east, at the thirty fathom level, no improvement during the past week. At present the lode appears to be disordered by a small cross-course; in rising at the back of this level, on the silver-lead lode, the prospects are more encouraging; lode about six inches big—good work. In driving south on this lode, at the twenty fathom level, the lode is from four to six inches in width—saying work. The tribute pitches continue to yield some good work for copper ore, but, on the whole, their appearances are not quite so favourable. The rise against Hurl-drown adit shaft is up about seven fathoms—ground much as hitherto.

SAMUEL HARPUR.

TAMAR SILVER-LEAD MINING COMPANY.

JAN. 25.—At the 135 fathom level the lode is about two feet wide, mixed with ore throughout, but not rich. At the 125 fathom level the lode is one foot in width, still unproductive. At the 115 fathom level the lode is nearly two feet wide, carrying small branches of silver-lead ore. At the 105 fathom level the lode is one foot wide, yielding promising work. At the ninety-five fathom level we have a large lode, composed of capel and spar; though it is at present poor, yet we expect (judging from its appearance) that the lode will be soon again productive. At the eighty-five fathom level we are still in soft fucus ground, that is unproductive of silver-lead ores. At the seventy-five fathom level the lode is 20 ft. 6 in. big, intersected with rich branches of ore. At the forty-five fathom level we are rising a wing through promising ground, that we shall soon have to set on tribute to advantage, the lode about 10 ft. 6 in., producing good work. We expect to sample on Thursday next about forty-six tons of rich silver-lead ores. The steam stamps are will not be sampled this time.

M. JAMES.

WHEEL LEADS MINING COMPANY.

JAN. 23.—Rise, in back of Eighty Fathom Level East—Lode 1 ft. 2 in. wide—nine inches yellow ore, improved since my last. Eighty Fathom Level West—Lode disordered. Seventy Fathom Level West—Lode one foot wide, producing one ton of ore per fathom. Seventy Fathom Level East—No lode taken down since my last. Sixty Fathom Level East—Suspended for the present; the men are sinking in bottom of said level. This wing will shortly be required to ventilate the seventy east, as well as to open ground for pitches; the lode in the wing is 1 ft. 3 in. wide, with a branch of ore on south part nine inches wide; the water is not quick as yet. Sixty Fathom Level West—Lode ten inches wide, producing some good stones of ore; the ground is a little improved. Fifty Fathom Level East, on South Branch—Lode six inches wide, good ore; it will, probably, intersect the north branch. C. H. RICHARDS.

WEST WHEEL JEWEL MINING ASSOCIATION.

JAN. 25.—Buckingham's engine shaft is from four to five fathoms below the fifty-seven fathom level, and ground still favourable for sinking. Fifty-seven Cross-cut South—Favourable for driving. Fifty-seven Cross-cut North—From south adit shaft this level is extended to about five fathoms from the shaft—ground favourable for driving. No lode taken down in the forty-two east, on Wheel Jewel lode. Forty-two East, on South Lode—Lode one foot wide, composed of gossan and pia. Sinking in the bottom of the forty-two, near the south branch—ground in this wing favourable for ore. The thirty west, on south lode, is worth 10/- per fathom. Thirty West, on Wheel Jewel Lode—Lode one foot wide, containing good stones of ore. Twenty West, on South Lode—Lode worth 10/- per fathom. Twelve West, on Wheel Jewel Lode—Lode worth 10/- per fathom. Deep Adit West, on Wheel Jewel Lode—This level, we are glad to say, is much improved in size and quality, and worth 10/- per fathom. Deep Adit West, on South Lode—Lode worth 10/- per fathom. The rise in back of level producing half a ton of good ore per fathom. S. LEAN. R. JOHNS.

TRETOLE MINING COMPANY.

JAN. 25.—The lode in the engine-shaft is much as last reported, fifteen inches wide, producing ore—the ground remains favourable. The lode in the thirty fathom level, west of John's shaft, is one foot wide, unproductive. The lode in the thirty fathom level, east of engine-shaft, is nine inches wide, tribute ground. The lode in the twenty fathom level, west of John's shaft, is six inches wide, tribute ground. The lode in the rise, in back of this level, is nine inches wide, good tribute ground. We have suspended the ten fathom level, east of Williams's shaft, and are sinking a wing in the bottom of the level for ventilation. Lode in wing six inches wide, good tribute ground. The lode in the adit level, east of Williams's shaft, is nine inches wide, unproductive. We have to-day cut what we believe to be the Mine Park lode, at the adit level, driving south; it is about fifteen inches wide, and is producing good stones of ore; it is very kindly, and, from present appearance, will make tribute ground. After we have driven two or three fathoms further south we intend to turn, and drive east and west on it. We have sampled this day, by computation, 130 tons of ore.

H. WILLIAMS. J. MORCOM.

TREBLEIGH CONSOLS MINING COMPANY.

JAN. 23.—We have this day completed weighing in the whole of the tri-buter ore, and purpose sampling it on Tuesday next, should the weather permit, which has been for two or three days this week very severe. With respect to the prospects of the mine, the sump-shaft at Christie is nearly at a seventy fathom level, where the ground is rather hard, and issuing quantities of water from the north part, where we expect to find the lode by a short cross-cut. The sixty fathom level (west end) and stopes look still well, and is worth 12/- per ton, whilst the east end is poor, and the lode split. In the fifty fathom level, west end, the lode is three feet wide, letting out a great deal of water, and worth 2/- per fm. In this level east the lode is eighteen inches wide, with occasional stones of ore, though cannot say much as to its value. In the forty fathom level, west end, the lode is fifteen inches wide, possessing a good feature, and producing stones of ore. The whole of our pitches here are looking well—the men working lustily, and getting fair wages. At Good Fortune the twenty-four fathoms west still looks well—in worth about 9/- per fathom, and leaving good tribute at back and bottom, whilst the back of the twenty fathoms level end continues to be worth from 10/- to 15/- per fathom for about six fathoms east from the present, and cheering prospects, though not quite so good as it has been, yet may expect a good pile of ore.

R. SINCOCK.

FOREIGN MINES.

BRAZILIAN PACKET.—Her Majesty's packet, *Lapwing*, Lieut. Coglan, arrived at Falmouth on the 22d instant, and landed mails from the Brazils, having sailed from Rio Janeiro on the 26th of November, and come home direct. The only intelligence alluded to in the latest advices from this quarter refers to the adjustment of the differences between France and the Argentine Republic; but its settlement had produced no effect upon the money-market at Rio, where the last quotation of exchange was 32½. The *Lapwing* has brought home four passengers, and about 18,000l. in gold on freight.

IMPERIAL BRAZILIAN MINING ASSOCIATION.

Gongo Saco, Oct. 12.—The produce of the mine exhibited in gold return from the 2d to 10th inst., and the account of the present appearance underground, given in mining report to the 10th inst., of that part of the mine referred to under such cheering prospects, to the end of last month, have not realised the hopes that might be, and were then, legitimately entertained on such plausible grounds; but the fact of the existence of three gold veins in the same workings in a virgin part of the field, is quite sufficient to justify the most reasonable expectations that the prosecution of our workings on these veins which continue traceable, though not constantly productive, will be cheered by the occurrence of bunches increasing in frequency and importance, as has been more than once the case in other parts of the mine, which, like this (Cumba), have at length yielded produce after a long and barren pursuit. The same deductions and the same hopes founded thereon, must, in like manner, form our consolation for the poverty at the same present moment of the other parts of the mine, and particularly the western ground, which has, in all our past experience of it, shown the existence of, unfortunately, large patches of unproductive ground to be toiled through, as we are toiling at present, to lead, as was the case at Duval's and Morgan's shafts, to produce of some value and duration. The effect of the combined unfavourable circumstances I have now pointed out has been to confine to the stamps the return of gold of the last ten days. You will notice in the mine report the commencement of trials on the course of the Socorro estate, of the Gongo bed of jacutinga, and the appearance in it, at this, its western extremity of veins, the richness and duration of which we shall endeavour to gain some knowledge of by further investigation—the object of which has not so much in view to immediate produce as to insight into the condition of our western ground generally.

Gold Report.

	From the Samps.	Total raised.
Lbs. oz. dwt. gr.	Lbs. oz. dwt. gr.	Lbs. oz. dwt. gr.
Oct. 9 to 31 (20 days not known).	56 2 12 12	56 2 12 12
Nov. 7th...	0 1 15 9	0 1 15 9
" 10th...	11 9 19 11	11 9 19 11
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Average number of heads working during the month 55,47.—Product for October £529 oits.

Taking into consideration the falling off in the stamps from want of rain, I hope the board will not consider the produce of the last two months discouraging; the rains having now, doubtless, set in, we may look to an increased produce. Arreas are in active progress—one will be at work by the end of December. Nothing of further interest has occurred but holing under the new arch by means of a jumper hole, which was bored nearly through, and then fired. The water now finds its way through, and four men who were employed at hand are now set at liberty.

C. HENRICK.

ON THE CONTINENTAL METHODS OF ASSAYING COPPER ORES.

On Monday evening, the 19th inst., Mr. S. H. Thomas, formerly of Gwennap, but recently of the Alten Mines, Norway, delivered a valuable lecture to the members of the Truro Institution, on the continental methods of assaying copper ores, with illustrations of the various tests employed in detecting some of the metals in solution. The lecturer began with a few remarks upon the importance of such inquiries as the present being pursued in the great mining district of Cornwall; and then, having described what assaying is, proceeded to remark that there are three kinds of assays that may be practised on different ores, in different circumstances, with more or less advantage. These are, 1st. The mechanical assay, which consists in the separation of substances mechanically mixed in the ore, by hand-washing, and which is frequently employed in this country for determining the comparative value of tin ores, and is here termed "vanding" or "vanning," from which the richness of the ore is judged by the residue after washing off the impurities. 2d. The docimatic, or fire assay, which has for its object to show the nature and proportion of the metals contained in a mineral substance. In this assay one metal only is commonly looked after, unless in the case of certain argentiferous ores. In every instance it requires a great deal of experience and caution, and the result obtained cannot always be confined in, unless verified by a double operation. And 3d. The humid assay, which, if not reducible to very simple processes, is a true chemical analysis, and may be advantageously applied either to ores or to the products of the furnace; but it cannot be practised on a large scale in smelting houses, on account of the complication of apparatus and re-agents it requires. By this mode, however, the ores, as well as their products, may be submitted to a more thorough examination than the dry way alone can effect, and one of its great advantages consists in the discovery and appreciation of the minute quantities of injurious substances which impair the malleability of the metals, and give them several bad qualities. If chemical analysis be rightly applied to metallurgical operations, it cannot fail to introduce remarkable improvements in the various processes now in use. Mr. Thomas then made some remarks upon the attraction which certain substances have for each other, describing and illustrating that power which is called "chemical affinity," after which he proceeded to speak of the docimatic assay. This mode of assaying was generally so well understood by the assay masters of Cornwall that he would not attempt to explain its principles; but as the French and German assays by fire, and the humid assays of Sweden and Norway were not generally known, he should explain them.

Mr. Thomas then explained the method adopted in France of assaying the sulphurets of copper mixed with iron, such as our Cornish ores, as described by Berthier, in his *Traité des Essais par la voie sèche*. He next proceeded to state that the Swedish and Norwegian method of assaying copper ore, as employed at the School of Mines at Falher, is in the humid way, with sulphuric acid; it has been adopted in Germany, and lately introduced into some parts of England, and is performed in the following manner:—

The ore, after being thoroughly dried, is first pounded in an iron mortar, and afterwards reduced to an almost impalpable powder in a calcedony or agate mortar, and, after being well mixed, 100 grains are to be weighed and carefully placed in a digesting flask, with a short wide neck; about three-quarters of an ounce of concentrated sulphuric acid is next to be poured on the ore, and the whole digested on a sand bath, with a heat sufficient to boil the acid, and continued till all vapours from the acid disappear, and the mass becomes dry. Should any of the ore remain undigested, which may be easily distinguished in the bottom of the flask, a small quantity of the pure acid must again be added, and the process conducted as before. From twelve to twenty-four hours are necessary to evaporate the assay to perfect dryness; this, however, will depend upon the quantity of acid used, for if in excess the evaporation will be completed with great difficulty. Care must also be taken to keep up the fire throughout the process, and more particularly so at the close, for, in case it diminishes, the highly concentrated acid, from its great affinity for water, will absorb humidity so rapidly from the atmosphere, that in a short time the bulk of the solution will be almost equal to the acid at first introduced, and nearly as much time will be required for its evaporation to perfect dryness.

When the ore has been perfectly digested, and forms a dry mass, fifteen or twenty drops of acid are added, and, after being again digested for about half an hour, the whole is to be washed out in pure hot water, and afterwards rinsed on an evaporating dish. While the solution is hot, it is filtered into a large precipitating glass, made of equal thickness throughout to enable it the better to withstand the heat; the residue on the filter is to be washed with hot water until the droppings cease to change the colour of litmus paper; the solution in the glass should be perfectly transparent, of a greenish, bluish, or deep greenish-blue colour, according to the richness of the ore.

The glass containing the filtered solution is next placed on a sand bath in a moderate heat, and a small square bar of polished iron inserted, when an escape of hydrogen gas will immediately take place, and the copper will be precipitated in a metallic state. When the solution has become quite colourless, and the precipitation completed, the liquor is to be decanted, and the precipitate washed in clean hot water, slightly acidulated with sulphuric acid, by which any particles of sulphate of iron which might have been precipitated with the copper may be separated. The copper is next collected on a filter, the weight of which had been previously determined; it is then dried and weighed as quickly as possible, and the weight of the filter being deducted from the weight of the paper and copper, will leave the per centage of copper contained in the ore. A silver evaporating dish is recommended in preference to the filter, as the copper in this manner may be evaporated to dryness in a much shorter time than could be done with a filter, and it is not so subject to oxidation.

The following method of collecting and refining the copper, as practised at the School of Mines at Freyberg, in Saxony, will be found to differ very materially in almost all the processes, from the foregoing, and also from anything at present employed in England. Mr. Thomas believes the docimatic assay is pretty general throughout Germany, but the humid assay is frequently used and recommended in preference to any other.

The construction of the furnace employed at Freyberg differs from that of our common air furnace; it is made in precisely the same manner as our muffle furnace for the cupellation of silver. A muffle is placed in the centre of the furnace, and the heat is regulated by dampers and doors fixed in the different parts of the fire-place and ash-pit. The calcining crucible is formed in the shape of a cupel or test, made very flat, of a very pure kind of fire-clay, and with a shallow concavity on the upper part for the reception of the ore.

One hundred grains of pulverised ore are to be mixed with an equal bulk of charcoal powder, and placed in the shallow calcining crucible in the muffle; the heat of the furnace is gradually increased until all sulphuric or other fumes cease to rise, but not to such a degree as to fuse the ore, or make it stick to the bottom of the crucible. When all vapours have apparently ceased to be emitted, the crucible is removed from the muffle, and the assay carefully turned in such a manner, that, by replacing it, that part which before was undermost shall now be upwards, and exposed to the action of the atmospheric current of air passing through the muffle. When the ore has been sufficiently roasted on both sides, the crucible is again removed from the fire, and, when almost cold, the ore is to be mixed a second time with charcoal powder, in an agate or calcedony mortar; it is again subjected to the same process of calcination as before, and at its close the fire is increased to a strong red heat, to ensure the reduction of all sulphurates, and the absence of the sulphurates, either of which being present in the after processes, would render the result inaccurate.

When the calcination is complete, and the assay rendered free from all volatile matter, it is taken from the fire and allowed to cool, and afterwards mixed with about thrice its weight of black flux, and 10 per cent. of granulated assay lead, and afterwards fused in a covered crucible in a strong white heat. The lead, from its affinity for copper, readily combines with the small particles of revived metal diffused in the slag, and, from its greater fusibility and specific gravity, easily subdues and separates from the earthy matter and other impurities. When the assay is sufficiently melted, and after being allowed to cool, on breaking the crucible the bottom of lead and copper will be found at the bottom.

During the time the assay is melting in the air furnace, a cupel or test, made of very fine and pure fire-clay, of a smaller size and less concavity than the calcining crucible, is placed in the muffle and subjected to a full white heat, after which the alloy of lead and copper is placed on it and tested in precisely the same manner as a silver assay. This process, however, requires much care and address, for the instant the lead is completely oxidised and separated from the copper, the cupel is to be removed, and together with its contents, immersed in a basin of cold water ready at hand for that purpose. The sudden cooling prevents the lead from acting on and dissolving any part of the copper. In this manner, after considerable practice, very small portions of copper may be extracted from the ores, and it is on the same principle that the assay with the blowpipe is conducted, the only difference being in the separation of the lead from the copper by boracic acid, as

he should presently explain. The instruments and apparatus which stood on his left hand were employed in making an assay with the blowpipe. The balance, he said, was so finely adjusted as to turn by the addition of the tenth part of a milligramme, about the 15-10,000th part of an English grain, when loaded with 1000 milligrammes, or nearly 10³ grains, and was sensible to the ten thousandth part of the weight. To ensure an accurate result with the blowpipe, it was necessary that the substance should be eight or ten times so much as the assay; it should be reduced to an almost impalpable powder in an agate or calcedony mortar, and well dried previous to weighing. Care must be taken at the same time that the heat be not sufficient to calcine the ore or drive off the volatile substances, such as sulphur, arsenic, &c.; it should never be raised higher than that required to evaporate the aqueous particles. The assay of copper with the blowpipe is divided into two classes; viz.:—Such as have the component parts volatile, or in which the copper is in the state of an oxide is vitrified, or otherwise combined with earthy matter; and metallic combinations in which copper forms the principal, or only a small part of the whole. To the first belong the greater part of the ores of copper, and minerals containing this metal, and also the products of smelting-houses; and to the second metallic alloys, of all kinds, in which copper forms a component part.

As all substances ranked under the first class require roasting or calcining, 100 milligrammes (about 1¹/₂ grain), must be placed in an agate mortar, and carefully mixed with three times its volume of pulverised pure charcoal, or with 20 milligrammes or 25 milligrammes of graphite—the latter, in most cases, being better for arsenical ores. This mixture is next placed in a shallow calcining crucible, prepared on the inside with red chalk, and the crucible is supported in a large deep hole, bored for the purpose in the charcoal, by the platinum wire and foil belonging to the blowpipe furnace or charcoal holder. For the purpose of calcination, a jet of large aperture is used with the blowpipe, and a strong oxidising flame is directed to that part of the charcoal immediately under the platinum support on which the crucible containing the ore is placed; care, however, must be taken that the heat be not sufficient to melt the ore. When the sample has been subjected to the calcination for some time, and the charcoal is burnt away from the upper part, it forms a hardish mass. The crucible is taken from the support, and with the assistance of a small spatula, the ore is turned over so that the bottom part may also be exposed to the air. To ensure the absence of arsenic and sulphur it is again mixed with charcoal dust and exposed to a strong red heat, after which it may be considered as perfectly calcined. The calcined ore is now composed of the oxide of copper, with other metallic oxides and earthy matter, it is to be mixed with 100 milligrammes of soda, and 50 milligrammes of borax glass. The soda is employed for reducing the oxide of copper, and other metallic oxides easily reduced, and the borax glass for dissolving the difficultly reducible oxides, such as iron, manganese, and cobalt, as well as the earthy matter. The ore, after being well mixed with the flux, is enclosed in soda paper, and melted in a small hole made for that purpose in a piece of well burnt charcoal in the reducing flame, until all the copper is collected in a bead, and the other oxides, together with the earthy matter, form a fusible slag. If on breaking the slag the copper be found of a grey colour, it is a proof that the calcination was not perfect, and in this case it will be necessary to remelt it with 50 milligrammes of granulated assay lead, and a little borax and soda mixed together, in a small hole on the charcoal with the reducing flame, until the copper combines with the lead and the soda, and the borax forms a clear glass bead. When this substance is sufficiently melted and cooled, the cuprous lead is to be separated from the slag and treated in the same manner as a metallic alloy.

In all combinations of copper with earths, such as silicates, and many other varieties, and when the copper averages about 30 per cent., it is necessary to add about fifty milligrammes of lead to the other fluxes; the lead combines with the copper, and prevents any mechanical loss that might otherwise occur in the slag. Fifteen or twenty milligrammes of oxide of antimony may be used instead of the lead; this metal reduces with the copper, and may afterwards be easily sublimed, leaving the copper pure. Metallic combinations, in which copper is a component part, is one of the most complicated of copper assays. It has been found that copper is easily separated from lead by melting the combination with boracic acid on charcoal—the lead is oxidised and dissolved, and the copper remains pure. Should a small portion of the copper be oxidised, and also be dissolved by the acid, it may again be easily reduced. If the copper or lead contain a small quantity of oxidisable metals, they are separated with the lead. On this account all combinations of lead and copper, with small portions of other easily oxidisable metals, are easily and accurately assayed by the blowpipe with boracic acid. Alloys of copper and antimony, or copper and tin, must be treated in a different manner.

An alloy of copper and lead is thus separated:—About an equal weight of boracic acid must first be melted to a bead alone, on the charcoal, the assay is afterwards added, and covered with a good reducing flame. Should the boracic acid become very fusible, and cover the metal, the blowpipe must be inserted deeper in the flame, and a fine blue point brought to act on the globe, so that the metal may be kept on the surface of the acid, in conjunction with the charcoal; one part will thus be acted on with the acid and the other with the coal. By this means the lead shortly oxidises through the action of atmospheric air, and is dissolved by the acid, leaving the copper pure. This process must be continued uninterruptedly until the lead is completely oxidised and the copper refined, which will be perceived from the greenish-blue colour it assumes when melting; the moment this change is observed, the flame is to be directed to the glass, by which the oxide of lead is slowly separated. When the bead of copper has assumed a peculiar greenish-blue colour, the heat is discontinued, and the copper removed from the slag with the pincers, and when cold its properties may be investigated.

Of all the different modes of assaying copper ore with which the lecturer was acquainted, excepting that in the humid way with sulphuric acid, he must certainly give the preference to that at present used in Cornwall, which, although still very imperfect, is the most expeditious, and more to be depended on than either of the others. The German assay with lead comes next, but this requires both a practised eye and considerable address, to detect when the copper is sufficiently fine and the lead perfectly oxidised, without dissolving any of the copper. The French assay, as well as many of those employed in other parts of England, must necessarily be imperfect, for the great portion of earthy matter and metallic oxides in combination with the calcined ore, must render the slag thick or pasty, and the copper can only be reduced in part and collected, the remainder being dispersed throughout as well as in combination with the slag. The great advantage the Cornish assay possesses over the others consists in the first process of concentrating the copper, or, as it is termed, in making the regulus. All the earthy matter, and most of the metallic oxides, are in this process separated from the copper, which, combining with a portion of the sulphur, is obtained in an almost pure state, being alloyed only with a small quantity of iron, which is easily separated in the subsequent processes. The humid assay with sulphuric acid is the most correct, but the process is long and tedious; it requires a great deal of care and attention, and much skill and practice are necessary to ensure an accurate result. In precipitating the copper from its solution with an iron bar, without great care, a precipitate of sulphate of iron will also fall with the copper, which can only be properly separated by washing with dilute sulphuric acid; but in doing this great caution is necessary to prevent any loss of copper that might otherwise occur with the iron. In drying the copper the operation must be performed quickly, and the dry precipitate weighed immediately afterwards, otherwise the copper will be subject to oxidation, and, consequently, the result obtained will show a greater per cent than the actual produce of the ore.

The best method of obtaining copper from any of its ores, that Mr. Thomas had found, is that employed in an analysis for separating the copper in solutions of copper and iron, with a current of sulphurated hydrogen gas. The following process he elucidated with experiments on solutions of copper, which he had prepared for the occasion. The ore, after being reduced to an almost impalpable powder, if not completely decomposed by nitric acid, is to be deflagrated, with three times its weight of nitre, in a red-hot crucible; the alkali is separated by washing with boiling water, and by treating the residue with muriatic acid nothing but the silic will remain, which must be separated by filtration. The solution is next to be evaporated to dryness and redissolved in distilled water, when all the soluble salts will be taken up, and the insoluble parts will remain in the form of a fine gritty powder, which must be separated as before. The solution should now be of a fine transparent green, or greenish-blue colour, according to the richness of the ore, and it should not contain any excess of acid by which the tests or re-agents would be decomposed, or their action on the copper prevented. A current of sulphurated hydrogen gas, prepared from the proto-sulphuret of iron and sulphuric acid, is next passed through the solution, when the copper will be precipitated in black flocks, which is the bisulphuret of copper. To prevent the noxious vapours which invariably arise from the escape of the gas while passing through the solution, the lecturer precipitated the copper by the addition of some pure water saturated with the gas. As this gas has no effect on solutions of iron together with the earths and some other metallic oxides, the copper will be precipitated alone. After the solution has been perfectly saturated with the gas, it is to be filtered, and the residue washed in water impregnated with the gas—the bisulphuret of copper will thus be obtained pure. The filter is next to be dried and burnt, and the residue digested in dilute nitric acid—the solution must be evaporated to dryness, and again dissolved in distilled water, and, when filtered, the whole of the sulphur will remain, and the copper once more be in solution; pure potash, or soda, is next to be added, when the copper will be separated in the form of a bulky blue precipitate, which is the hydrated black oxide. When this precipitate is boiled with an excess of potash it becomes black and quickly subdues; but if the quantity of potash be insufficient to decompose the salt completely, the precipitate is green, being a sub-salt of copper. The black precipitate, when dried and ignited, may be calculated at 60 per cent. of pure copper, or

may be reduced to the metallic state in a crucible lined with charcoal, after being mixed with carbonate of soda and charcoal dust.

Having pointed out two of the most delicate tests for detecting copper in neutral solutions, the lecturer concluded by explaining some of its properties with acids, and the remainder of the tests usually employed for detecting its presence in solution, together with the changes produced by the same tests in solution of some other metals. Our report has, however, already extended to so great a length, that we cannot follow Mr. Thomas in these. We may state, that the lecture was illustrated by above eighty experiments, many of them of a very nice character, and all most successfully manipulated.

[At the close of the lecture there was an interesting discussion, in which Mr. Christie, Mr. Moyle, and Mr. Thomas took a part, after which a vote of thanks, proposed by Mr. Tregelles, and seconded by Mr. Keeke, was unanimously accorded to the lecturer for his valuable services. Mr. Thomas, in returning thanks, said, that in coming forward that evening he had only been prompted by his desire to contribute his mite towards promoting the objects of the many literary and scientific institutions that had been established during his absence from England; and that although his departure was again drawing nigh, he should continue to feel an interest in the literary and scientific discussions which were becoming so prevalent in this country, and which contributed so much towards the diffusion of useful knowledge. If they looked back for a few years, and contemplated the wonderful improvements that had been made in the mechanical part of mining, and more especially in the steam-engine, which now stood prominent throughout the world, a question would naturally arise, how much more would have been done had a College of Mines been established some years ago to assist the miner and engineer in their various occupations? In this country, with engineers, a knowledge of mechanics had made visible strides, but with the minor little or no progress had been made in the sister sciences of mineralogy and geology; and the mines were still conducted by the practical miner, who generally scorned every thing in the shape of theory. The mining interest of Cornwall had plainly shown their disregard for science, where their own pecuniary interests were concerned—and the rejection of Sir Charles Lemon's magnificent offer would be a lasting disgrace to the county. The advantages to be derived from a mining school, where both practical and theoretical mining were taught, would be incalculable. Even the use of the blowpipe would be of essential service to the miner in determining not only the ores of tin and copper, but also of any other mineral he might meet with, and which was before unknown to him. A knowledge of mineralogy and geology was also essential to the miner, and metallurgical chemistry to the assayer—and more particularly so at this time, when tin, lead, and copper might be said to be the only metals that were generally known, and even these, in certain combinations, were not unfrequently mistaken for other substances. The mining interest of Cornwall would find their error, at some future time, in refusing to contribute towards Sir C. Lemon's Mining School; for, on the practical and theoretical miner should be combined, little or no progress could be expected to be made in the science of mining. Mr. Thomas concluded by thanking the company for his kind reception, and said he should always be happy to render the institution any assistance that lay in his power.]

MINING NOTICES.

[Under this head we purpose collecting such paragraphs as may appear in the provincial and other Journals, having reference to discoveries and improvements in mining operations at home and abroad. It is hardly necessary to observe, that we must not be considered to admit the correctness of the information conveyed, which, in too many instances, requires cautious investigation—the sanguine expectations of parties in some instances, and the want of honesty in others, throwing a degree of responsibility on a Journal in giving publicity to reports, which we do not intend taking upon ourselves.]

VALUABLE MINERAL PROPERTY.—There are in several lone situations in this neighbourhood, the ruins of small furnaces for making iron. Those ruins exist at Daffyn, Aberdare, Cwmpandy, Aberman, Cwm-pant-y-gwath, in Rhonddafach, dingle, &c. At the latter spot, contiguous to the old furnace, several rich veins of iron mine are visible, and for four miles above and below is a track of mineral property, supposed to be the most valuable at present unoccupied in the mountains of Glamorganshire.—*Merthyr Guardian*.

WIRKSWORTH MINES.—A numerous and influential meeting of the land and mine proprietors was held at the Red Lion Inn, Wirksworth, on Monday last, at which we observed Philip Gell, Esq., Capt. Gondwin, Messrs. G. Milnes, J. Wass, J. Allsop, D. Wilson, T. Popper, Page, &c., &c. The object of the meeting was to arrange terms with the Meebroughough Company, on the proposal to continue the sough, so as to offset the object for which it was formed. The proprietors of the sough were represented at the meeting by Messrs. F. Hurt, Charles Hurt, and R. Hurt, the Rvs. P. Gell, J. Womley, &c., when the meeting came to a unanimous vote upon the subject. We congratulate our Wirksworth friends upon the prospects they are about to realise by the completion of this important drainage, which it appears was commenced many years since, and on which an outlay has been already expended of upwards of £60,000. It was stated that there cannot be less of known mines within the township than sixty or seventy, the ore in which is inaccessible, in consequence of being inundated with water; and in most of which it is well known there are large supplies of ore.—*Derbyshire Chronicle*.

MINE ACCIDENTS.

Explosion in the Countess Pit, near Whitehaven.—On Wednesday week, an explosion of carburetted hydrogen took place in one of the Earl of Lonsdale's coal pits, called the Countess, by which one poor fellow was suddenly deprived of existence, and another so seriously injured as to place his life in imminent danger. The Countess Pit was examined on the day prior to the calamity by some of the Earl of Lonsdale's agents, and then pronounced free from danger; but the explosive gas, so fatal to human life, will accumulate sufficiently in two hours to render the exposure of a naked flame unsafe. Pitmen should, therefore, at all times, but especially on entering the mine in a morning, be careful in keeping their lamps covered, or otherwise they place their own and their fellow-workmen's lives in the most perilous jeopardy.

Fire at St. Hilda's Colliery.—A fire occurred at the St. Hilda's Colliery, South Shields, on the night of the 14th inst. About midnight, flames were observed in or near the engine-house, and alarm being promptly given, the fire-engines were hurried to the spot. After anxious and long-protracted efforts, the cause of alarm was completely extinguished, not, however, before the engine-shed and a considerable portion of the wood-work in the shaft were destroyed. Upwards of twenty men and boys were employed in the pit, but they fortunately escaped without injury. The fire is generally supposed to have had its origin at the mouth of the pit furnace.

Accident at a Coal-pit in Donibristle.—A correspondent informs us that a dreadful accident occurred, a few days since, at one of the numerous coal-pits in this neighbourhood. It appears that as six young men were going down to their work, and when only within a few yards from the surface, the bank broke, precipitating the poor unfortunate fellows to the bottom—the shaft being eighty yards deep; they were, of course, all killed on the spot.

PROPOSED LONDON AND MANCHESTER RAILWAY.

A meeting of gentlemen, desirous of promoting the formation of a railway from London to Manchester direct, through the Churnet Valley, was held at the Royal Oak Inn, Chendle, on Thursday, the 21st inst.

Captain SNEYD (of Huntley).

Mr. J. M. Blagg (the company's agent for the Chendle district), entered into a detail of particulars respecting the proposed railway from London to Manchester by way of Leicester, which, it was expected, would shorten the distance about thirty miles. It was calculated that £5,000,000. would cover every expense of obtaining the act, purchasing the land, forming the railway, erecting stations, and providing locomotive power; but, not to be within the mark, the capital of the company was fixed at £6,000,000. The company was not yet formed, and the object in bringing the business forward now, was to enable the proprietors to complete their plans and books of reference, so as to bring them before Parliament in March next. To effect this, they required the sum of £6000., to pay the expenses of surveyors, &c., which they hoped to raise by the contributions of those who were friendly to the undertaking; £600. had been subscribed for the object at Luton and Denby, and it was proposed shortly to call meetings, for the purpose of raising the funds requisite, at Leicester. Mr. Blagg acknowledged that he had that morning received a communication informing him that the Derby and Macclesfield line had not been abandoned, but would be proceeded with as soon as an improvement in commercial affairs justified such a step; and that a resolution of want of confidence in the provisional committee of the Leicester project having been passed by a deputation from Bedford, Luton, Hampton, and St. Albans, those gentlemen had immediately signified their readiness to resign.

Mr. CATTLOW (who attended on behalf of the Midland Counties Company) said, he was authorised to inform the meeting that the real Churnet Valley line was not abandoned; it extended from Derby to Macclesfield, a distance of forty-two miles—could be constructed for a capital of about one million—was not likely to provoke opposition—and would connect Manchester, Stockport, and Macclesfield, with Derby, Nottingham, Leicester, and the Eastern Counties. Mr. Cattlow concluded by moving the following resolution:—"That this meeting learns, with great satisfaction, the intention of the Midland Counties Railway Company to preserve in making a railway from Derby to

no objection to its being taxed as heavily as you like, and if 4*l.* per ton is not sufficient put on 8*l.*—but I object to its being manufactured, and open to use, in this country, in competition with my own produce. On this part of the subject I would observe, that if one article does already compete with another, it matters little where the competition takes place. And if this foreign copper does not already compete in England, it does abroad—if not in the Mother country, it does in her dependencies. The differential duty in India is only 3 per cent., and during the present year considerable quantities of tile copper, the produce of foreign ores, has been sent to Calcutta and Bombay—displacing, of course, an equal quantity of Cornish or Welsh. Nor do I see what is to prevent the roller of copper at Rotterdam buying cake at Swansea, the produce of foreign ores—rolling it into sheathing, and selling it in Bombay and Calcutta, as he is already doing in the Mediterranean, the Brazils, and many other places. If we were a corn exporting country, do you suppose the Corn Laws would be a protection to the farmer? The smelter would obtain his modicum of the general good, in being enabled to purchase a most desirable class of ores, free from the restraints and perplexities of the system as it stands at present. It will not require any very elaborate argument to persuade the Chancellor of the Exchequer that 40,000*l.* or 50,000*l.* per annum would be a desirable addition to his income, and which may be obtained, too, with less trouble than is now given to the subject, though it does not yield a farthing.

By the plan I propose, too, the trade would be placed on a more natural, a more extended, and, consequently, a more permanent basis; but, as illustrations of this would extend my letter to an inconvenient length, and will readily suggest themselves to every one at all conversant with the general principles of commerce, I pass them over.

As to the mode of levying the duty, and the amount of it, I would suggest that the produce of all ores be ascertained as at present, and that those of 10 per cent. and under be admitted duty free.

Above 10 per cent. to 15 per cent., ad. per unit of produce per ton of ore.
" 15 " 20 " 7d. ditto ditto
" 20 " 25 " 8d. ditto ditto
" 25 " 30 " 10d. ditto ditto
" 30 " 35 " 11d. ditto ditto
" 35 " 40 " 12d. ditto ditto
" 40 " 45 " 13d. ditto ditto
" 45 " 50 " 14d. ditto ditto
" 50 per cent. " 55 " 15d. ditto ditto

To the foreign miner I would further say, that it will be much better for you to pay a direct defined tax to the Custom-house, than an indirect undefined one to unsound and harassing fiscal arrangements, to the fears of the smelter, and to the speculation of the foreign buyer, which, taken together, at the present moment, are equal to 9*l.* per ton of copper on all that you import, and which is never less than 5*l.* per ton.

As "agitation" is the order of the day, pray, Mr. Editor, lend a hand in agitating this question, and you will oblige

ONE INTERESTED IN THE IMPORTATION OF FOREIGN COPPER ORES.

[The letter of our correspondent having immediate reference to a subject likely to come under the discussion of the Legislature on an early day, and which is directly alluded to by Mr. Trefry and Mr. P. N. Johnson in our columns, is one deserving of attention. That some measure will not only be proposed, but, in all probability, carried, we believe no doubt exists, therefore it is highly desirable to acquire information on both sides of the question, and to consider what is best to be done for the protection of the interest of the British miner; at the same time, that the several points advanced calculated to be of advantage to the manufacturer, and the country at large, are equally considered. We are glad to find so intelligent a correspondent in the field, and trust that he will continue to direct his attention to the subject—one which, as we have already said, will come under the notice of the Legislature, and, previous to which, it is highly desirable to collect statistical information, so as to arrive at deductions whereby correct data and evidence may be afforded.]

TRESAVEAN MINE—MR. CURRY'S AGENCY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I am truly glad to congratulate my co-adventurers in Tresavean at the result of the late meeting on the mine, on Tuesday last, specially convened to take this matter into consideration; the recorded votes was as follows, viz.:—

For a London office, and the continuance of Mr.

Curry as London agent 73 96 shares
Against the same 14½ ditto
Neuter and absent 8½ ditto

Total shares 96

These recorded votes are, I think, the best answer to all the anonymous correspondence that has of late so frequently appeared in your Journal touching this matter, but which, in my opinion, has taken too much of a personal nature towards that gentleman—trying thereby to prejudge the merits of the subject in dispute, and which, in common fairness, ought not to have been adopted pending the meeting, which alone was competent to decide on the same. However, leaving to the writers of such anonymous letters all the satisfaction that they may desire by such unfair modes of attack, I must repeat, it is a matter of satisfaction to find that myself and co-adventurers in London are not to be deprived of an office or agent, where we may obtain information as to the state of our investment embarked in this mine. The fullest information to my inquiries at his office, and the punctuality with which I have received my dividends, have at all times been afforded by Mr. Curry to me—indeed, this gentleman not gratuitously performing the duties of such office seems to have raised the late hubbub against him.

I am, Sir, your obedient servant,

AN ADVENTURER.

[We never entertained a doubt as to the result of the meeting, for we could not contemplate, for one moment, the adventurers in a mine of such magnitude accepting gratuitous services, or abolishing an office in London, which, it is known, has given confidence to the out-adventurers. The union of expression of opinion on the part of the Cornish and out-adventurers must be gratifying to Mr. Curry, for, although, he might have possessed the confidence of the one, it is no reason he should not have been viewed with an eye of jealousy by the other. Some further remarks on the subject will be found in another column.]

ON THE POWER OF WATER-WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I am glad to reply to any question arising from my notes on hydraulic engines, provided they be put under a pleasant form. Had your cynical correspondent, "A Miner," supplied his name, its dignity might have inspired one with a disposition to defend; since this is not the case, I shall regard his miscolouring (1) of my work as the duff of a miscreant, and compare statements with other views, than merely to combat one known not whom.

I know by reference what is observable by Smeaton and others, and should question the propriety of running counter to their experience and prescription; but, without lagging into your paper a host of opinions that notoriously differ, I have attempted in my own way to furnish the workman with essential views of what water ought to do, and not of what it does, in imperfect contrivances. If in such attempts I advance what is wrong, I have no objection to stand corrected. Instead of a tedious recapitulation of my first and second letters, I will premise that therein two things are spoken of—viz., "the method of reducing the extreme fall to the actual one," and "the work done by the real or acting fall under a suitable velocity." In order that his matter, coming, as it seems, from a practical man, may subserve a good cause, I beg to show that we do not differ as much as some men in their opinions. He says that a fall of 15 feet gives 3 horses' power nearly, while I make 17 feet equal to 3½ horses' power full. We infer from him that the extreme fall must be lessened two feet for the real fall—something tantamount to which may be seen in my first notice. Further, the difference of efficiency between over and under-shot wheels is rendered so small on the continent, by, I think, MM. Fourcroy and Poncelet, that I felt borne out in applying the same calculation for each, provided the wheels were of the best construction. It is very possible that the wheels noticed by "A Miner," allowed much water to escape without due action, which is remarkably the case in all that I have seen, which also go much too fast. An under-shot should not move as fast as an over-shot, because the natural speed of water on an inclined plane is not so great as when it proceeds perpendicularly. We might, probably, both of us profit by the remarks of builders of recent and extensive practice abroad.

Now, taking the same ill-fated example in conformity with his own practice, and with my mode of calculation, for the real fall, I have a right

to increase the 3 feet by two feet, that is, five feet for the extreme fall. I propose to treat the real fall in all instances the same, then $3\frac{1}{2} \times 596^2 = 3\frac{1}{2}$ horses power nearly; in under-shots this allowance of two feet is not usual, then the calculation stands thus, says "A Miner"—
 $3\frac{1}{2} \times 596^2 \times 10^2 = 3\frac{1}{2}$ fall, which brings out a difference of result as $3 \times 3200 = 3\frac{1}{2}$; but I have no objection to differ thus much from him until I know who he is.

We will now proceed to compare two wheels—an under-shot with an overshot—each of 5½ feet extreme fall. Although the two feet can by no means be observed as an allowance for under-shot wheels, something must be deducted from the whole fall, and I would repeat my rule thus—Drive a nail into the centre of the float-board at where the water impinges—that is, where it has overtaken the velocity of the wheel—and another at the centre of the lowest board. The vertical distance between the two rails comes nearly to the acting fall, which may be treated in all respects as that arising from an overshot.

I do not apprehend any objection to the action of water being compared to that of solid bodies without friction—thus, suppose three and a half balls per second to pass through the discharging aperture on the wheel, No. 1, whose velocity is such that one ball shall fall into each bucket; let the whole weight of each ball be represented by its diameter of one foot, then the expense would be three and a half per second falling perpendicular; but three and a half diameters, or feet, is the fall, or mean diameter, of the wheel—therefore, we have to prove that the number of balls through the semicircle exert the same tangential and vertical force. "A Miner" will admit that the tangential forces of the balls in their respective positions, independently of friction, are the black sides of the triangles, and that these added give the amount of force always at the rim of the wheel; and, as they compose a line A B, equal the diameter of the wheel, 3½ units, this multiplied by the velocity of 3½ feet, is 12½ units of work done per second. Again, the main fall is to be the same with No. 2, but, as the slanting route of the water is twice as long for the same vertical height, the velocity should be twice less: for this reason there will be two balls in each bucket through twice the length—that is, twenty-two balls simultaneously acting instead of five and a half, and this, with the same flow; then the sum of these forces compose a line or force C D, which is twice A B, or 7 units; this multiplied by the velocity due to the plane, 1½, or half of first velocity, gives 12½, as before.

It will not be my plan hereafter to give such unpopular demonstrations; the above is for your correspondent only, and if he has the sagacity, that an underground miner, in the dark, ought to have, he will understand it.

Tuckingmill, Jan. 21.

P.S. Why did not "A Miner" finish his work in reply to "M. F.?"

* Gallons. † Feet. ‡ Lbs.

[We hope our correspondent and "A Miner" will understand each other, and doubt not but that our readers will derive benefit from the discussion.]

ON MINE SURVEYING.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Since my communication on mine surveying an experiment has been made, which is corroborative of the principles there laid down. The survey was taken with a plain theodolite, manufactured by the celebrated Cary, of London; it was without a vernier, and the needle (constructed on the recent improvement suggested by Professor Barlow, when comparing the directive power of various magnetic needles for the British Government) was distinguished alike for delicacy on the pivot and general accuracy; the only error perceptible in the whole instrument was in its graduation, which had not been so executed as for both poles of the needle to correspond with the same points in the diametrically opposite graduations; this, however, although most important in performing the work, with the aid of the logarithmic tables, does not interfere, that I am aware, of, with the mechanical method. The chain was a superior one, made of brass, and graduated into fathoms by that accurate, and now popular, artist, Wilton, of St. Day, in this country.

The spot selected was nearly parallel to the plane of the horizon, and as free from inequalities as possible—while the weather, with an almost imperceptible wind, S.E. by E., one-half E. (I cannot exactly state), presented a rather unusually fine appearance for this season of the year.

C. With the instrument on A, as represented in the accompanying diagram, bearing from the north point 53 deg. east, and distance 9 fms. 1 ft. from thence to B, bearing 40 deg.—distance 7 fms. 3 ft.—completing it by bearing from C to D, 350 deg., at a distance of 5 fms. 2 ft., which stated as follows:—The sine A + sine B—sine C—the rectangular co-ordinate east—E; also cosine A + cosine B + cosine C—the rectangular co-ordinate north—W; and $\sqrt{W^2 + E^2}$ —the hypotenusal line—say D—

then the sine A + sine B—since C—D—the logarithm of the $\sqrt{A^2 + B^2}$

$34^\circ 10' 11''$ the hypotenusal line on the $\angle 34^\circ 10' 11''$ 19½ fathoms; the meridional line north 16½ fathoms, and the perpendicular east 11½ fathoms, is agreeable to the following table and diagram:—

Lines.	Bearing by Distance from the N. point of meridian in deg. min. sec.	Dist. from the N. point of meridian in fathoms.	Length of hypo. in fms.	Length of hypo. in deg. m. s.
A—B	31 0' 40" 9 7 10	—	3516	34 15 19 30
B—C	7 3 0' 40" 9 22	—	3748	—
C—D	3 2 0' 30" 9 24	—	3748	—

12½ fms. 3 ft.

11½ fms.

10½ fms.

9½ fms.

8½ fms.

7½ fms.

6½ fms.

5½ fms.

4½ fms.

3½ fms.

2½ fms.

1½ fms.

½ fms.

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to use the dial in determining whether the bearings of the points coincided above and below. I have also known a system of lines adopted, and modern railway practice affords instances of the useless outlay of thousands, in erecting towers as observatories for guiding the drifts.

Mr. Budge very properly maintains in his letter last week, that " trigonometry, well understood and well applied, is the only certain and infallible guide." I regret that any attempt should be made to depreciate any of the scientific and practical works which have appeared on the subject of mine surveying. I have no doubt the demand for such works will be greatly increased by the correspondence carried on in your Journal. In surface surveys I have always adopted the practice recommended by a correspondent in your last Number—that of obtaining a good *datum* line, with permanent objects, if possible, and carry on a trigonometrical survey, independent of the magnetic bearing, otherwise than as a check. I would suggest to your correspondents that some instrument is required for taking angles underground—the theodolite in general use for surface work is too large and complicated—the subject is worthy of consideration. I would also mention the subject of plotting angles; I have laid aside the protractor, and if any of your correspondents will state their practice, I shall be happy, at a future time, to give mine.

I am, Sir, your obedient servant,

A CIVIL ENGINEER.

[It is pleasing to find subjects of interest, like the present, eliciting from correspondents, practically acquainted with their merits, continued communications, and thus rendering the columns of the Journal really valuable to the practical man. We have ever found it an arduous task to overcome prejudices with the *miner* or *smelter*—it is slow work, but, by the fair discussion of the subject, we feel assured that beneficial results will arise. The practice observed in various districts, we need hardly observe, varies considerably, of which the course taken by our several correspondents afford full evidence.]

MINE AND COLLIERY SURVEYING.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—The discussions which have lately taken place in your Journal have not only given it more of the character of a mining paper, but also have rendered it a sort of text book; yet, it is to be wished that the critical mode of writing, which has from time to time appeared in the Journal, was discontinued. Man is apt to commit himself whenever he undertakes any project without duly considering both sides of the question—how often does he forget that the shield has two sides. Being totally unacquainted with metallic mining, I wrote under the idea that Mr. Budge was speaking of coal mining; had I acted with a little prudence, and asked—Does Mr. Budge mean coal mining? I should have saved myself the trouble of answering him, and he the trouble of replying to me. I always regret the use of scurrilous language when I see it with my mark in print, and could I withdraw it I should readily do so. I consider that man who clouds himself in a false name, and who uses that name solely for the purpose of wounding his fellow-man, an assassin.

Mr. Budge ought, considering the error I was in when writing, and which he readily detected, to have said—"X," you mean one branch of mine surveying and I mean another—I am unacquainted with your's, and, from the tenor of your letter, I conceive you are completely so with mine"—and thus have saved himself the trouble of writing upon a branch of which, he says, he knows little or nothing. However, good generally rises out of evil; my object in writing is to ascertain the nature of Mr. Budge's *Miner's Guide*—what is its price, and where it may had—and the applicability of it to coal mining? I am desirous of knowledge. Is it a sort of a traversing table, similar to those generally found in works on navigation—derived from the doctrine of the composition and resolution of forces? I have been at a little trouble lately in making some tables to facilitate mine surveying, for my own private use, which, being engraved on a quadrant, will show at once the rise per yard per twenty yards, and the perpendicular height at the last distance, which, if not already published in Mr. Budge's work, or elsewhere, you shall have, Mr. Editor, if they will, in your opinion, be of any benefit to the miner.

The thanks of the mining community ought to be given to Mr. Dunn for his gentlemanly conduct in giving to the world the series of papers, diagrams, &c., on ventilation. I should like very well to see mine surveying taken up as regards colliery surveying; it would form good matter for consideration and discussion—it would tend to spread the principles of the art, and would form a base on which the young mine surveyor might raise a superstructure of usefulness and utility.

Bursley, Jan. 26. I am, Sir, your's, respectfully, X.

[We are pleased to find that "X" does not resort in the like terms adopted by other correspondents; it is at all times painful to receive any thing like recrimination, and which is unnecessary, more especially when the object, no part of all, is that of eliciting, as well as affording, information. Credit is due to all our correspondents, and they have our thanks, for "service rendered the state," in elucidating observations which tend to the acquisition of information, if even they do not themselves furnish it. With reference to Mr. Budge's work, we shall be happy to obtain a copy and transmit it to our correspondent; and as regards the tables—should they prove not to be similar to those already published, we shall, with pleasure, give them in section.]

MINERS' SMELTING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—So much has already appeared in your columns, and in the *West Briton*, on the subject of the formation of a Mining and Smelting Company, that I fear I may be almost considered intrusive in offering any further remarks upon it. My excuse must be the deep interest I feel in the prosperity of all the parties connected both with the mines and the copper works.

If, as some are led to believe, the smelters have dealt hardly with the miners—if undue advantage has been taken, and unreasonable profits obtained (which would seem to be contradicted by the fact of so many companies having within the last few years withdrawn from the trade), then, indeed, are the adventurers quite right to make such a change, and take such measures as they may deem necessary for the protection of their property, and best calculated to promote their interests. But if, as I have been assured, the price paid for ores has at all times been as high as the price of copper will admit, and frequently even higher—if, moreover, it is the case that on more than one occasion the smelters have made great sacrifices in order to uphold and maintain the mines, preventing a depression of the standard, by which they might have profited, then, certainly it does appear unwise to disturb a system which has been so long acted upon, one under which the utmost good faith and good will has existed between the parties concerned, and, moreover, one which, to judge from the late great increase of the copper mines, would appear to have contributed most materially to the encouragement of the adventurers, and the increase of business and wealth throughout the country.

That it is by no means clear a union of mining and smelting into one concern will benefit the parties, I think they may be fairly inferred from these two branches of our commerce having hitherto been kept separate and distinct, and this even by gentlemen who were largely concerned in both. Mr. Daniell, Mr. Vivian, and the Messrs. Williams (no mean authorities, let me add, have always sold their ores at the ticketing in common with those of other adventurers, never, I understand, unless under some extraordinary circumstance, having withdrawn a parcel with a view to smelting it themselves); in truth, whilst there is no connection between the two concerns from which we may calculate their being united would be an advantage to both, there is almost a necessary distinction in the manner of transacting the business of each. It would, in fact, be just as reasonable to say that a tanner should be a shoemaker, as ironmaster a blacksmith, or the proprietor of a copper work a manufacturer of pots, kettles, and pans, as that every adventurer in a copper mine should also become a smelter.

The experiment, however, is, it seems, about to be tried, how far these two great branches of our commercial interests, in which the county of Cornwall is so especially connected, being united, will be of advantage to the parties concerned in them. I earnestly hope that the trial will be full, fair, and conclusive. Nothing can be more prejudicial to commerce than a want of confidence in the continuation of the system and regulations under which it is established. In the case in question, it must affect the transactions both of the miner and the smelter. The latter will assuredly endeavour to provide against the danger of a short supply of ores, and probably, therefore, diminish his rate of smelting, no longer buying so freely in the ore market. The miner, by the decreased demand, will cease to be encouraged to new discoveries. Moreover, combination begets combination. Hitherto it is understood the smelting companies have gone into the ore market perfectly independent of each other; no consultation, no understanding between them as to the standard at which

they are to offer. The benefit of this competition is to be seen in the price at which copper is sold, and that at which ores are bought; but if combinations on the part of the miners are to be contended with, is it not to be feared that the smelters in self defence may be driven to combine? In a word, is it not obvious that difficulties involving all parties are to be apprehended? Again, then, I say I earnestly hope the experiment now in progress may be fully and finally tested, and that the miner and the smelter may be relieved from a state of distrust and uncertainty, which, whilst it lasts, cannot but be injurious to both. It will tend much to settle this question, if the miner, who having now become also a smelter, marks well what his share of the produce in each mine in which he is concerned, would have produced had it been sold on a certain day, as heretofore, at the ticketing; and makes the comparison between the sum he would have thus received, and that he actually receives after his ores have been converted into copper and sold. Let him, then, take into his calculation and consideration the increased outlay of his capital, together with the delays, the dangers, and the complexity of the transaction in the one case, and the simplicity and certainty in the other, and he will be enabled to decide how far he has gained or lost by the change; and thus also will he have the means, with some degree of certainty, of informing others how far they would be benefited by following his example.

I am, Sir, your obedient servant,

A SINCERE FRIEND BOTH TO MINER AND SMELTER.

Jan. 18.

[The question taken up by our correspondent has been treated with much ability in our columns, and, in the present instance, is fairly discussed, although we can imagine a little bias observable in favour of the smelter.]

ON BLOW-PIPES.

TO THE EDITOR OF THE MECHANICS' MAGAZINE.

Sir.—Having been a reader of your valuable Journal since its commencement, I have been greatly indebted to the various contributions for the information I have received through the medium of its pages. I therefore feel pleasure in sending the following for insertion. I have occasion to use a blow-pipe to harden drills. As I use near fifty per day I find it detrimental to my health to use the common blow-pipe, I have, therefore, procured a spirit blow-pipe, which answers extremely well, but is too expensive; I have, on that account, determined on having an oxyhydrogen blow-pipe, and shall feel obliged to any of your readers who will point out the objections, if any, why the following method should not render the use of these machines safe, and without risk of explosions. Instead of conveying the gases through sponge and wire gauze, I propose using in their place small washers of sugar cane packed with common tobacco, with the nozzle of the blowing tube to screw against the washers on a projecting rim in the safety tube. I remain, Sir, your's, &c.,

THOMAS KEGG.

[Practical suggestions of this nature are valuable to the miner, and we have no doubt if any objection exists to the plan proposed by Mr. Kegg, that a communication will appear from Mr. Prudeaux, or other correspondents, in our next.]

[ADVERTISEMENT.]

EAST TRETOIL MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—I am desired by many shareholders, who have called on me for information, to copy this, their report, and to forward it to you for insertion as speedily as possible. I remain, Sir, your's, &c.,

Duke-street, Lincoln's Inn-fields.

JOHN HARPER.

Sir.—Observing in your Journal of the 2d inst., a notice of a meeting of the adventurers of East Tretoil Mine, whereat it was stated by the chairman (Mr. G. H. Heppel) that the sett was granted to four individuals—viz., Messrs. Mount, Wilkinson, Tregellas, and Robinson—we hereby inform you that, in the year 1829, the original sett of that mine, now called East Tretoil, was granted to Messrs. John Harper, Thomas Clark, James Clark, and James Williams Tregellas. This sett, together with the Tregellan Mine, was transferred to Christian John Robinson, or the directors of the Tregellan Mining Company, and in trust for them, and it is still part and parcel of the Tregellan Mine, and the property of the shareholders of that company. The business of this mine has been carried on by the same agents, both in Cornwall and London, and in the same offices, since 1829 to the present time, and with the same secretary, who, after extracting about 16,000*t*. from the pockets of the shareholders, have managed to detach and appropriate to their own use this most valuable part of the mine, and also part of the materials. We have been recommended, and have applied, to Captain John Harper, who was understood to be the best authority for proof of those statements, and have referred other shareholders to him also for information, as they are about to lay before the Lord Chancellor a statement of grievances, and petition for restoration of the property they consider to belong to them and their fellow-shareholders—some whose shares have been forfeited by the directors, which also they consider illegal. In the original prospectus it is stated, that "there has been seen, four or five fathoms below the adit level, a very rich vein of nearly solid ore;" in another part of the prospectus the "ore is supposed to be worth from 12*t*. to 20*t*. per ton, which can be obtained without waiting for the erection of a steam engine, and there can be little doubt that the mine, in a few months, will itself pay the expense of working, without requiring the shareholders to advance more than a small part of the estimated capital."

Now, Sir, two steam-engines were purchased, one of which has been working nearly two years—some 16,000*t*. has been expended, and there is no ore worth speaking of—and all, as we consider, from the ignorance or roguery of a certain clique connected with the working of this mine; we, therefore, consider, in justice to ourselves, that this matter should be brought to the notice of the public, and request its insertion in your valuable Journal.

We are, Sir, your obedient servants,

SEVERAL SHAREHOLDERS.

SULPHUR.—At the meeting of the Academy of Sciences (Paris), on the 11th instant, M. Regnault, who has distinguished himself by his researches respecting the specific heat of different substances, read a paper, containing the results of some further experiments on the same subject. In this paper he mentioned a curious fact, relative to sulphur, when solidifying, after it has been previously reduced to the state of a paste. It is known that sulphur, when kept in fusion for a certain time, changes its colour, becomes of a hyacinth red, and acquires the property of remaining soft for a long time, by plunging it into cold water. M. Regnault has observed, that sulphur, in this state, when submitted to a temperature of about 98 degrees (centigrade) in a stove, liberates a great quantity of heat in becoming solid, as to raise the thermometer suddenly to 110 degrees. When the solidification is effected, the thermometer returns to the temperature of the stove, and there continues.

LIQUEFACTION OF AIR.—M. Tillotier (the chemist, in whose lecture room, at Paris, the recent explosion of carbonic acid gas took place, which killed M. Henry, a very promising student) has undertaken the dangerous experiment of attempting to liquefy atmospheric air by pressure. The apparatus for this purpose has been nearly completed. To effect the liquefaction of air, he contemplates compressing it more than 2400 atmospheres, instead of 100, to which extent he carried his compression of carbonic acid gas.

GALVANIZED METALS.—M. Sorel has succeeded, by means of a constant electric current, in fixing upon iron in the cold state a more or less thick and very adherent layer of zinc; and, in the same way, he has been enabled to fit several other metals. M. Ferrot, of Rouen, has been engaged with experiments upon the same subject.

HYDROCHLORIC ACID.—M. Langlois states that he has procured this acid perfectly pure by decomposing the hyposulphite of potash, by means of per-chloric acid, which forms an insoluble salt with the potash. The acid thus obtained is liquid, without colour, and slightly of the consistency of syrup. Its taste is acid and bitter.

STONE FOR THE NEW HOUSES OF PARLIAMENT.—Charles Wright, Esq., of North Anston, has been offered after the rate of 15*00*t*.* per acre by Government, for the stone contained in two fields of about sixteen acres, at the above place, wanted for the erection of the new Houses of Parliament. This very liberal offer, we understand, has been rejected, notwithstanding the fields were to be re-delivered to Mr. Wright, on a sufficient quantity of stone having been obtained from them for the purpose alluded to. The land is totally unconnected with any building, and only of an ordinary description, so far as the soil is concerned.—Sheffield J.R.

THE ACTION OF GUNPOWDER IN BLASTING.

[From the *Inventors' Advocate*.]

The curious fact announced by Mr. Roberts, in his description of his new mode of blasting by galvanism, which was noticed in the two last numbers of our journal, deserves to be considered more at length, and to have its cause explained. The fact to which we allude is, that loose sand, put into the bore-hole of a blast, will be sufficient to withstand the explosive force of the gunpowder, provided there is a vacant space left between the wadding and the powder; and that the hardest rocks will be rent asunder before the loose sand will be blown out of the hole. The bursting of a gun, when the ball is rammed only a short way down the barrel, is also mentioned as an analogous fact, depending on the same cause—though it does not seem so extraordinary as the rending asunder of hard rocks before loose sand gives way. We propose to examine the nature of the phenomenon, and to explain its cause. It must be borne in mind, that it is one of the essential properties of all forces emanating from a centre to diminish in power in proportion to the squares of the distance from the acting point. The *rationale* of this effect is, perhaps, more clearly exhibited in the diffusion of light than in any other central emanations.

The flame of a candle sends out rays of light in all directions, in straight lines; consequently, the farther the rays extend, the light becomes diffused over a larger space, and its intensity is diminished in exact proportion to the increase of surface which it illuminates. If a piece of board, one inch square, be held at a distance of one foot from the flame, it receives all the light which would be diffused over four square inches at a distance of four feet; or over sixteen square inches, at a distance of four feet. The quantity of light is the same in both cases, but its intensity varies, it will be seen, as the square of the distance. What is thus apparent in the diffusion of light takes place equally in all radiating powers—gravitation, cohesion, explosions, heat, sound, &c.

We may thus easily comprehend, that, when an explosion of gunpowder takes place, the force exerted on bodies nearly in contact with the centre of explosion, is four times the amount of that which operates at twice the distance, and sixteen times as great as is exerted at four times the distance.

It will also be observed, that, in proportion to the closeness of approach to the centre whence the explosive force emanates, will be the amount of power exerted on a given surface, and that a smaller increase of distance will produce a greater difference in the effect. For instance, suppose a ball were rammed into a gun to within the tenth-part of an inch from the centre of explosion, the force exerted in expelling it would be, according to theory, four times as great as if the ball were at a distance of two-tenths of an inch from the central force. Thus the difference of one-tenth of an inch would produce a quadruple diminution of power. But when we commence with the ball at a farther distance from the centre of explosion, say half an inch, it would then require a distance of another half-inch, instead of a tenth, to produce a quadruple diminution of power. This is not, however, absolutely the case in practice, for the explosive force does not emanate from a point, but from the whole mass of powder employed acting from the centre outwards. Though the distances we have assumed may not, therefore, be correct in practice, nor applicable to a ball rammed close to the powder, yet they will be found correct at greater distances, compared with which the quantity of powder exploded may be considered as a point. Having thus re-stated the action of central forces, to make the subject intelligible to those of our readers who may not have attended to it, the application of this action to the explanation of the phenomenon in question, may be readily understood.

When a ball is rammed down into a musket-barrel, close to the powder, the explosive force of the gunpowder acts on it with full effect, and it is expelled, with accelerating speed, out of the barrel. The gases generated in the explosion thus obtain room for their expansion. But if the ball be rammed down only part of the way, the sudden explosion will not act with sufficient power on the ball to expel it; and the expansive force of the powder confined within the breech of the gun, causes it to burst.

Assuming, for instance, that the ball, when rammed down to the powder, is still half an inch from the centre of explosion, and that when partly rammed down it is twenty inches from the same centre; in the latter case the force acting on the ball would be sixteen hundred times less than if the explosion were to take place when it is close to the powder. Supposing the ball to be one-tenth of an inch from the centre of explosion when rammed down close, the difference in the sudden explosive effect would be increased to 40,000. The same principle may be explained by drawing numerous radii from the supposed centre of action in the powder in all directions round it. The number of radii touching on any point may be taken as signs of the comparative amounts of force exerted. It will then be found that the number of radii which reach the ball when at a distance from the powder, bear about the same proportion to those touching it when close, that we have indicated as the amount of the respective forces acting upon it. When the ball is more distant, the radii, which before touched it, strike against the inside of the barrel. Thus we perceive that when the ball is not rammed down, there is a large additional portion of the gun-barrel exposed to the sudden explosive force of the powder, tending to burst it asunder in its weaker parts.

In the foregoing instances ignited gunpowder is considered only as a central force; and in this respect its sudden explosive action, which produces its general effects, may be regarded. But if the resistance it meets with be too great to be overcome, the compressed gases produced from its ignition will act otherwise than as central forces, and will press equally on every part of the internal surface.

The circumstances we have stated in reference to the explosion of gunpowder in a musket will equally apply to the process of blasting; and will show the cause why a force which is able to rend the hardest rocks is unable to blow out a few inches of loose sand. In consequence of the space left between the wadding and the powder, the amount of the explosive force that is brought to bear on the surface of the wadding is extremely small, compared with its action on the rock immediately surrounding the powder. A mass of twelve or fifteen inches of dry sand, Mr. Roberts states, is sufficient to confine the effects of the largest charge of powder, unless the rock be absolutely unbreakable.* There is another advantage attending this mode of blasting, which Mr. Roberts has not pointed out, but which may be perceived from the preceding consideration of the bursting of a gun-barrel. When the tamping is driven close to the powder, a part of the rock is protected from the action of its explosive force by the tamping itself. When there is a vacant space left, a larger portion of rock is exposed to receive the effects of the explosion, part of which, in the usual method of proceeding, is uselessly exerted against the tamping, tending to force it out.

There is no necessity for restricting Mr. Roberts's improved mode of tamping to his method of exploding the powder by galvanism. The latter mode, though in all respects a great improvement in the use of the fuse, requires some arrangements and manipulations, which at present, at least the miners may not be found willing to adopt, or always capable to execute; but the new plan of tamping presents such manifest advantage—is so great a saving of trouble, as well as a great avoidance of danger—that we cannot imagine any one would hesitate to adopt it. We are, therefore, anxious to separate the two plans, for the purpose of inducing the more general introduction of that one which, from its simplicity as well as its efficacy, is calculated to confer immediate benefits on all miners.

NAVIGATION BETWEEN GREAT BRITAIN AND THE PACIFIC.—Capt. Peacock has addressed a letter to the directors of the Pacific Steam Navigation Company dated Valparaiso, Oct. 17, announcing the safe arrival at that port of their two vessels, the *Chili* and *Persia*. Capt. Peacock also furnishes the following important particulars respecting the coal of that country:—"After the engines were painted and were dry, I got the steam up with the coal of the country, in order to try it. The small quantity which we procured was got from the foot of a precipice. It was inferior to Welsh coal, but we had no difficulty in keeping up the steam as long as it lasted. I was informed that good coal might be procured at a place named Colcaura, on the coast, about twelve leagues south of Concepcion; and I intended to have visited it with the Polish geologist, M. Loholicky, in the service of the Chilean Government, but, having met with an accident, I sent Dr. Welbourne, who, in company with M. Loholicky and Mr. Cunningham, the British vice-consul, proceeded to Colcaura, Larapinta, and Arica for the purpose of examining the coal formations in those vicinities; and I am happy to state that their report establishes the fact of the existence of coal suitable in every respect for steam navigation."

* When the rock resists the sudden shock, then the compressed gases act equally on all parts of the bore, and there is no advantage gained by leaving the vacant space.

MEETINGS OF SCIENTIFIC BODIES.

PLACE OF MEETING.	DAY.	HOURLY.
Entomological Society.	17, Old Bond-street.	Monday
etc.	6 p.m.	
C. & I. Engineers	26, Great George-street.	Tuesday
Herbicultural	21, Regent-street.	Wednesday
Linnan	Bois-square.	Thursday
Society of Arts	Adolph.	Friday
Geological	1, Margaret-street.	Saturday
Royal	20, Margaret-street.	Sunday
Antiquaries	28, Leicester-square.	Monday
Zoological	1, Albemarle-street.	Tuesday
Royal Institution	20, Bedford-street, Cov. g.	Wednesday
Botanical	20, Bedford-street, Cov. g.	Thursday
Westminster Medical	1, Grafton-street.	Friday
Royal Asiatic	14, Grafton-street.	Saturday

PUBLIC COMPANIES.

MEETINGS.	DAY.	HOURLY.
Port Cawl Iron and Coal Company	4, Finsbury-square	Feb. 4
Brighton Gas Company	7, Lombard-street	4
George and Vulture	4	1
Duke of Cornwall's Harbour Company	London Tavern	4
Holmshush Mining Company	26, New Broad-street	9
London and Greenwich Railway	London Tavern	9
London and Birmingham Railway	Queen's Hotel, Birn. Station	12
Henstock and Christow Mining Co.	Officer Arms, Chelmsford	17
London and South Western Railway	Nine Elms, Vauxhall	20
London and Westminster Bank	Offices, Lichfield	March 3
MEXICO.	Feb. 6.	Masterman and Co.
Cambrian Iron and Spelter Co.	21, Feb.	London Joint-Stock Bank
Sheffield & Manchester R.R.Way	10.	As former calls
West Wheal Jewel Mining Ass'	10.	London & Westminster Bank
London and Blackwall Railway	23.	London & Westminster Bank
Commercial Bank of London	100.	15, Moorgate-street

DIVIDENDS.

Australian Agricultural Company	10/- per share	17, King's Arms-yard	30.
Wicklow Copper Mine Company	7/- per cent.	22, Tokenhouse-yard	Feb. 15.
Holmshush Mining Company	10/- per share	26, New Broad-street	25.

LATEST PRICES OF FUNDS, SHARES, ETC.

ENGLISH FUNDS.			
Reduced 3/- per Cents.	97 1		
Ditto Account, 8 1/2			
New 3/- per Cents.	97 1		
Reduced 4/- per Cents.	96 50		
FOREIGN FUNDS.			
Belgian Bonds, 5 per Cent.	99 2		
Brazil, 5 per Cent.	73 4		
Danish, 8 per Cent.	78 9		
Dutch, 12 per Cent.	101 1		
Ditto, 5 per Cent.	94 91		
Russian, 5 per Cent.	1,14 4		
SHARES.			
Great Western.	284 294	per.	
Ditto Shares.	13 14	per.	
North Midland.	24 22	per.	
South Eastern.	10 12	per.	
Colonial Bank.	105 110	per.	
London & Westminster.	238 241	per.	
London & Blackwall R.R.Way.	42 43	per.	
London and Brighton.	63 64	per.	
London and Croydon.	12 13 per share		
London and Birmingham.	59 60	per.	
London & B. Western.	59 60 per sh.		
Eastern Counties.	144 145	per.	
London and Greenwich.	54 55	per.	

MONEY MARKET AND CITY NEWS.

SATURDAY.—The English funds, without any great deal of business, were steady, at the slight improvement of Friday.

Very few bargains were transacted in the foreign stocks, and the advance in Spanish was not maintained.

Railway shares were generally heavy, with a market against sellers.

MONDAY.—The bargains effected in the English stocks were of limited amount, and, as they took no particular bearing, did not influence the market.

Foreign securities had slightly fluctuated. Spanish Actives closed 254 to 2.

Portuguese 5 per Cent., 93 to 1.

Belgian, 95 to 99, and Belgian, 73 to 74.

Railway shares were in more demand, at higher prices, in some instances.

Birmingham was last quoted 50 to 52 p.m.; Brighton, 63 to 64 p.m.; Great Western, 27 to 28 p.m.; ditto Half-a-mile, 13 to 14 p.m.; South Western, 67 to 68 per share; North Midland, 27 to 28 p.m.; Blackwall, 41 to 42 p.m.; Gomfort, 35 to 36 p.m.; ditto, 1 and New North Midland, 3 to 4 p.m.—Australia Bank (new), 51/- per share; Union of Australia, 50/- ex div.—General Mining Association, 51.

TUESDAY.—The English funds were firm in the early part of the day. Consols for the Account being done at 93. This quotation, however, was not maintained, some sales having been effected, produced a gradual decline. Exchequer Bills were quoted 14 to 15 p.m., being a decline of 7s.

The decline in Consols alluded to had an unfavorable effect on Spanish Actives.

At the opening of the market the quotation was 25 to 26, from which price they gave way to 24 1/2. Dutch and South Americans were also a shade lower.

In the share market, a further advance of 1/- per share was taken place in Birmingham, in consequence of a proposition of the directors to issue new shares, at 50/- each, for the purpose of capitalising the debentures, which shares are to be issued to the proprietors of part in the proportion of one share to each 10/- stock.

—London and Westminster Bank, 44/- per share; Union of Australia (new), 114/-—London and Westminster Bank, 44/- per share; Colonial Bank, 50/- to 51/-; Union of Australia, 50/- ex div.—General Mining Association, 51.

WEDNESDAY.—The English funds were transacted in the foreign securities, whilst the preparation for the settlement of the half-monthly account did not fully employ the jobbers. Upon the whole the market is considered rather firm.

The settlement in shares was of no interest, but this was the chief business in this department. Birmingham Doubly closed 50 to 51 p.m.; Great Western, 52 to 53 p.m.; ditto, new shares, 13 to 14 p.m.; South Western, 57 to 58 per share; Gomfort, 50 to 51 p.m.; ditto, 1 and New North Midland, 24 to 25 p.m.; ditto, 1 and New Eastern, 14 to 15 p.m.; Birmingham and Gloucester, 50 to 51 p.m.; North Western, 53 to 54 p.m.; ditto, 1 and Dover, 51 to 52 p.m.; ditto, 1 and India Stock 24, however, further declined. Bank Stock leaving off 187 to 188, and India Stock 24 to 25. Exchequer Bills were quoted 4 to 6 p.m., and India Bonds to 6 p.m.

Very little business was transacted in the foreign securities, whilst the preparation for the settlement of the half-monthly account did not fully employ the jobbers. Upon the whole the market is considered rather firm.

The settlement in shares was of no interest, but this was the chief business in this department. Birmingham Doubly closed 50 to 51 p.m.; Great Western, 52 to 53 p.m.; ditto, new shares, 13 to 14 p.m.; South Western, 57 to 58 per share; Gomfort, 50 to 51 p.m.; ditto, 1 and New North Midland, 24 to 25 p.m.; ditto, 1 and New Eastern, 14 to 15 p.m.; Birmingham and Gloucester, 50 to 51 p.m.; North Western, 53 to 54 p.m.; ditto, 1 and Dover, 51 to 52 p.m.; ditto, 1 and India Stock 24, however, further declined. Bank Stock leaving off 187 to 188, and India Stock 24 to 25. Exchequer Bills were quoted 4 to 6 p.m., and India Bonds to 6 p.m.

The foreign market was particularly languid, and which was increased by the small amount of business going forward.

Forth & then the preparation for the settlement in the share market, the business was unimportant.—Australia Bank, 54/- per share; Colonial Bank, 50/- to 51/-; Union of Australia, 50/-.

THURSDAY.—In Consols there were few bargains made, but the market bore an improved tone. For the Account the price was at one period of the day 93, but ended 94 sellers, the last minor quotation was 93 to 94, the greater part of the business was directed to the Reduced securities, which closed 51/-; Three per Cent. Reduced were finally marked 90 to 91. Three and a Half per Cent. Reduced, 91, and New Three and a Half per Cent., 89 to 91. Three and a Half per Cent. and India Stock have, however, further declined. Bank Stock leaving off 187 to 188, and India Stock 24 to 25. Exchequer Bills were quoted 4 to 6 p.m., and India Bonds to 6 p.m.

Very little business was transacted in the foreign securities, whilst the preparation for the settlement of the half-monthly account did not fully employ the jobbers. Upon the whole the market is considered rather firm.

The settlement in shares was of no interest, but this was the chief business in this department. Birmingham Doubly closed 50 to 51 p.m.; Great Western, 52 to 53 p.m.; ditto, new shares, 13 to 14 p.m.; South Western, 57 to 58 per share; Gomfort, 50 to 51 p.m.; ditto, 1 and New North Midland, 24 to 25 p.m.; ditto, 1 and New Eastern, 14 to 15 p.m.; Birmingham and Gloucester, 50 to 51 p.m.; North Western, 53 to 54 p.m.; ditto, 1 and Dover, 51 to 52 p.m.; ditto, 1 and India Stock 24, however, further declined. Bank Stock leaving off 187 to 188, and India Stock 24 to 25. Exchequer Bills, 4 to 6 p.m.

The settlement of the foreign stock account to day was attended with no difficulty, in fact, the business done within the last fortnight has not been large, and was chiefly confined to Spanish Bonds, in which, however, the extreme fluctuations have not checked a good market. Portuguese Bonds have scarcely varied at much. Dutch and other securities, which formerly used to be objects of speculation, are now quite suspended as such, and the few transactions which occur are almost exclusively limited to bond sales and purchases for money, and the quotations are steady. Spanish Actives closing 25 to 26. Portuguese 5 per Cent., 82 to 83; ditto, 8 per Cent., 81 to 82; Dutch 22 to 23; ditto, 8 per Cent., 80 to 81; ditto, 8 per Cent., 79 to 80; ditto, 8 per Cent., 78 to 79; ditto, 8 per Cent., 77 to 78; ditto, 8 per Cent., 76 to 77; ditto, 8 per Cent., 75 to 76; ditto, 8 per Cent., 74 to 75; ditto, 8 per Cent., 73 to 74; ditto, 8 per Cent., 72 to 73; ditto, 8 per Cent., 71 to 72; ditto, 8 per Cent., 70 to 71; ditto, 8 per Cent., 69 to 70; ditto, 8 per Cent., 68 to 69; ditto, 8 per Cent., 67 to 68; ditto, 8 per Cent., 66 to 67; ditto, 8 per Cent., 65 to 66; ditto, 8 per Cent., 64 to 65; ditto, 8 per Cent., 63 to 64; ditto, 8 per Cent., 62 to 63; ditto, 8 per Cent., 61 to 62; ditto, 8 per Cent., 60 to 61; ditto, 8 per Cent., 59 to 60; ditto, 8 per Cent., 58 to 59; ditto, 8 per Cent., 57 to 58; ditto, 8 per Cent., 56 to 57; ditto, 8 per Cent., 55 to 56; ditto, 8 per Cent., 54 to 55; ditto, 8 per Cent., 53 to 54; ditto, 8 per Cent., 52 to 53; ditto, 8 per Cent., 51 to 52; ditto, 8 per Cent., 50 to 51; ditto, 8 per Cent., 49 to 50; ditto, 8 per Cent., 48 to 49; ditto, 8 per Cent., 47 to 48; ditto, 8 per Cent., 46 to 47; ditto, 8 per Cent., 45 to 46; ditto, 8 per Cent., 44 to 45; ditto, 8 per Cent., 43 to 44; ditto, 8 per Cent., 42 to 43; ditto, 8 per Cent., 41 to 42; ditto, 8 per Cent., 40 to 41; ditto, 8 per Cent., 39 to 40; ditto, 8 per Cent., 38 to 39; ditto, 8 per Cent., 37 to 38; ditto, 8 per Cent., 36 to 37; ditto, 8 per Cent., 35 to 36; ditto, 8 per Cent., 34 to 35; ditto, 8 per Cent., 33 to 34; ditto, 8 per Cent., 32 to 33; ditto, 8 per Cent., 31 to 32; ditto, 8 per Cent., 30 to 31; ditto, 8 per Cent., 29 to 30; ditto, 8 per Cent., 28 to 29; ditto, 8 per Cent., 27 to 28; ditto, 8 per Cent., 26 to 27; ditto, 8 per Cent., 25 to 26; ditto, 8 per Cent., 24 to 25; ditto, 8 per Cent., 23 to 24; ditto, 8 per Cent., 22 to 23; ditto, 8 per Cent., 21 to 22; ditto, 8 per Cent., 20 to 21; ditto, 8 per Cent., 19 to 20; ditto, 8 per Cent., 18 to 19; ditto, 8 per Cent., 17 to 18; ditto, 8 per Cent., 16 to 17; 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